TRAVELS

THROUGH THE

SOUTHERN PROVINCES

OF THE

RUSSIAN EMPIRE,

IN THE YEARS 1793 AND 1794.

TRANSLATED FROM THE GERMAN OF

P. S. PALLAS,

COUNSELLOR OF STATE TO HIS IMPERIAL MAJESTY
OF ALL THE RUSSIAS, KNIGHT, &c.

IN TWO VOLUMES.

VOL. II.

WITH MANY COLOURED VIGNETTES, PLATES, AND MAPS.

LONDON:

Printed by A. Strahan, Printers-Street,

FOR T. N. LONGMAN AND O. REES, PATERNOSTER-ROW; T. CADELL AND W. DAVIES, STRAND; AND J. MURRAY AND S. HIGHLEY, FLEET-STREET.

MDCCCIII.

ПРЕЗИДЕНТСКАЯ
БИБЛИОТЕКА
КОЛЛЕКЦИЯ РЕДКИХ КНИГ
Инв.№ 2200

TO

HIS MAJESTY,

THE

MOST SERENE, MOST POTENT,

AND

BELOVED EMPEROR AND AUTOCRAT

OF ALL THE RUSSIAS,

ALEXANDER,

&c. &c. &c.

MOST SUBMISSIVELY DEDICATED.

MOST GRACIOUS SIRE,

YOUR Imperial Majeſty has already exceeded the hopes of the faithful Ruſſians, whoſe joy at your acceſſion to the Throne was univerſal.

Having ſerved that great and illuſtrious Sovereign, your Imperial Majeſty's Grandmother, upwards of thirty years, not only from motives of duty, but likewiſe from a ſincere attachment to her mild Government; and being now arrived at the ſixtieth year of my age, I feel a juſt pride in joining the general voice, and thus publicly expreſſing my admiration of your Imperial Majeſty's humane and benevolent diſpoſition. Theſe ſentiments, however, are by no means new in my breaſt; for I entertained and profeſſed them, when I had the good fortune to obſerve and admire your Imperial

Imperial Majeſty's exalted mind in the Grand Duke, and Succeſſor to the Ruſſian Sceptre.

The glorious and happy days we have experienced during the reign of the Great Catharine will now return to Ruſſia: a new and happy æra commences with the XIXth century, in the deſtiny of this Empire; which appears to have been peculiarly ſelected by Providence to counteract the deſtructive progreſs of anarchy, and to become the aſylum of civilized manners, as well as of the arts and ſciences.

May the ſame benign Providence grant my moſt cordial wiſhes!—Thus, your Imperial Majeſty's reign, which is calculated to diffuſe univerſal happineſs, will in glory and duration even ſurpaſs that of your late, and ſtill revered, maternal Anceſtor; in the ſame degree as that Great Princeſs excelled the more early Founder of the grandeur of Ruſſia.

The

The preſent performance is likewiſe the fruit of that protection and munificence which the Great Empreſs conferred upon the uſeful ſciences. I have reaſon to rejoice, that my life has been ſpared, till Her excellent and gracious Grandſon is ſeated on the Throne; and that I have an opportunity of laying at His feet this part of my labours.

Moſt Serene and Puiſſant Monarch,

Your Imperial Majeſty's

Moſt devoted Subject,

P. S. PALLAS.

Akmetſhet,
24th April, 1801.

THE AUTHOR'S PREFACE.

If this were a proper place to inform my readers of the diſquietude and hardſhips, which oppreſs me in my preſent reſidence, and embitter my declining days, I could eaſily apologize for the late appearance of the ſecond or concluding volume of theſe Travels. From the obſervations occurring in pp. 363 and 364, it will by no means be difficult to conjecture the cauſes, that have principally occaſioned ſuch unexpected delay. There are, however, other circumſtances which deſerve to be ſtated. Among theſe, I ſhall in the firſt place particularly mention, that, for want of leiſure, I did not immediately digeſt my Obſervations on the Crimea in the ſame order, and in ſo complete a ſtate, as thoſe related in the firſt volume: hence I could not ſupply the deficiency, and reduce them to a fair copy, without beſtowing on it a conſiderable portion of labour. Another motive aroſe from my anxious wiſh to viſit ſeveral diſtricts a ſecond time, with the view of rendering my remarks more perfect. Laſtly, the frequent interruption of my health ſhould alſo be taken into conſideration; and I muſt confeſs, that literary purſuits at the deſk are now to me more fatiguing than at any former period

of my life. I truſt, therefore, the reader will, on account of theſe circumſtances, not refuſe his indulgence.—I do not, however, thus intend to bid farewell to the learned world: ſhould I ſurvive this ſixtieth year of my age, ſo as to enjoy the return of a few ſprings, I propoſe henceforth to employ myſelf in the publication of ſome works commenced ſeveral years ſince. The materials for theſe performances are in a ſtate of forwardneſs, and partly arranged: perhaps, then, by the bounty of providence, I ſhall be able to conclude them, and to repoſe at length with ſatisfaction towards the cloſe of my career.

Laſtly, I am here obliged to correct an error, which my predeceſſor Güldenſtädt, as well as myſelf, have accidentally committed in the firſt volume of theſe Travels. In the 367th page of that volume, it has been ſtated that "this eminence preſents no ſpecies of rock, except the very ancient lime-ſtone, which forms the whole of this mountainous tract," I candidly admit, that I have been miſled by drawing an inference from the collateral knolls and ridges, and by applying it to the central ſummit of the mount; which, at the time of my viſit, was covered with a thick rime, or looſe ſnow. Lately, however, Count APOLLOS MUSSIN-PUSHKIN, has obligingly ſent me ſome ſpecimens of granite and granitell, taken from the ſame apex; and which leave no doubt, that this iſolated part of the Caucaſus contains a rocky grain of the granite

granite kind: on the ſurface of which is depoſited the calcareous matter uſually found in mountains.—From a laudable zeal of exploring mineralogical objects, the noble Count has, in the preceding year (1800), at his own expence undertaken a journey into the lofty regions of Caucaſus; and we may juſtly expect many important elucidations of this remarkable chain of mountains. He is, indeed, one of thoſe few *perſons of rank*, who devote their talents and fortune to the advancement of ſcience.

EXPLANATION of the PLATES and VIGNETTES contained in the Second Volume.

Plate I. A View of the Gate of Perekop, or *Or-Kapi*, with part of the line that interſects the iſthmus of the Crimean peninſula; drawn from the ſide of Crim-Tartary.—In front are ſeen carts from Ruſſia Minor, laden with grain, in order to take ſalt in return; farther, travelling carriages, and waggons of the Tartars, drawn by camels or horſes; a Ruſſian poſt-coach, and other vehicles, in conſequence of which this entrance into the Crimea preſents a lively ſcene almoſt throughout the ſummer. p. 7.

Plate II. The upper part of the narrow Valley, and the Town of *Bakhtſhiſarai*, together with the palace of the Khan, the principal Moſque, the ſepulchral monuments of the Khans, and the garden belonging to the caſtle; the whole being drawn from a ſlight eminence.—By the intermixture of gardens ſurrounded with Lombardy poplars, by the turrets of the moſques, and the ornamental chimnies, this town affords an agreeable picture. pp. 27. 29.

Plate III. A Proſpect of *Eſki-Yourt*, or the ancient ſepulchral monuments, near the village of that name, immediately below Bakhtſhiſarai. In front appear ſome Tartar tomb-ſtones; of which, thoſe erected to the memory of males, are decorated

corated with a turban. Tradition relates, that in the moſt reſpectable of theſe buildings (diſtinguiſhed by the name of *Atzitz*), are depoſited the remains of the daughter of a Pruſſian Sheikh, who was married to one of the Crimean Khans. According to report, this lady cauſed the mauſoleum here alluded to, as well as the fountains at Eſki-Yourt, to be conſtructed at her own expence. p. 38.

Plate IV. View of the Port and Town of Akhtiar, or properly *Ak-Yar*, formerly called Sevaſtopol; drawn from the Severnaya-Koſſa, together with a flotilla lying at anchor in the roads. On the moſt remote point are ſeen the ruins of the ancient Cherſoneſus; and on the ſhore, where this town is ſituated, in the form of an amphitheatre, are repreſented the barracks erected for ſailors, as well as the entrance into the ſmall harbour. p. 45.

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clearly exhibits the manner, in which the white calcareous ſtrata are horizontally diſpoſed on the ſurface of the blackiſh ſchiſtus extending into the ſea; and, at a diſtance, lies the Cape of Balaklava, which conſiſts of marmoraceous lime-ſtone, and abruptly advances into the ſea. p. 91.

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Plate XIII. A View of the Eaſtern Part of the Town of Karaſſubaſar, drawn from an eminence on the ſouthern ſide. The moſt conſpicuous objects are two *Khans*, or mercantile halls; and, in the back-ground, is the extenſive cemetery, now completely deſpoiled of its tomb-ſtones. In front appears the building appropriated to the manufacture of tiles. p. 208.

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ſituated on a ſimilar calcareous rock, ſteeply interſected on the ſide next the ſea. The aſcent to the tower, erected on its ſummit, is by means of ſteps leading up a terrific precipice, along the wall which is provided with ſeveral turrets. The principal church, being built nearly in the middle of this abrupt eminence, diſtinctly appears from the ſame ſide; together with the ſea, and the ſmall harbour at the foot of ſuch fortified rock. pp. 115. 219.

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ERRATA.

P. 176, laſt line, for *ſeventeenth* read *ſeventh* vignette.
297, line 27, for *oultet* read *outlet*.

TRAVELS

INTO THE

SOUTHERN PROVINCES

OF THE

RUSSIAN EMPIRE,

IN THE YEARS 1793 AND 1794.

Travels in the Crimea.

SINCE we left the rivulet Berda, we had hitherto only travelled over the ſteppe of the Nagays, or, as it is called, the Crimean Steppe; which, about fifteen years ago, previouſly to its ſubjection to the Ruſſian Government, and while under that of the Khan of this peninſula, ſerved as a place of paſturage for the numerous flocks belonging to the nobility and other opulent inhabitants: it alſo afforded a place of refuge for the wandering hordes of Nagays, who had ſubmitted to the Khan of Crim-Tartary. Excepting the villages of the Kirghis, a people who employ themſelves both in commerce and in the culture of the ſoil, no fixed habitation could be perceived in this region. Thoſe Nagays, however, who have been removed thither from Mount Caucaſus, and the banks of the Kuban, are beginning

to build winter-dwellings for their accommodation; and progreſſively to extend their tillage.

Perekop, or in the Tartar language *Or-Kapi*, is the firſt inhabited place of the Crimea, properly ſo called; and which was anciently termed the Tauridan Cherſoneſus. Travellers, viſiting this peninſula, generally paſs through Perekop; though even now numerous vehicles, coming thither from Ruſſia Minor with proviſions, and taking fiſh or other commodities in return, croſs the narrow ſtreight of Sivaſh in ferry boats, eſpecially when deſtined to the eaſtern parts of the Crimea: in this caſe, they paſs near the ſmall fort *Jenits-Khe*, or *Tonkoi*, as it is now termed by the Ruſſians; and which is at preſent abandoned: thence they travel along the ſandy iſthmus of Arabat, which extends to one hundred and ten verſts in length, and is in ſome parts extremely narrow.

As the whole peninſula is connected with the Continent only by the iſthmus of Perekop, it is highly probable that the Crimea anciently, with its more elevated Southern part, formed a complete iſland, when the waters of the Black Sea were alſo higher; as appears from various hiſtorical paſſages of the ancients*. Even in the more remote ages, this iſthmus was fortified with the view of protecting the peninſula againſt the irruptions of the Tauro-Scythians. Thoſe fortifications conſiſted of a wall, ſtrengthened with towers; from which circum-

* Pliny, in the fourth book of his Nat. Hiſt. ch. 26, expreſſes himſelf in the following manner: "*Sed a Carcinite Taurica incipit, quondam mari circumfuſa et ipſa, quoquo nunc jacent campi; deinde vaſtis attollitur jugis.*" Count Potoſky has inadvertently given an imperfect tranſlation of this paſſage, in his "*Fragments historiques et geographiques ſur la Scythie, la Sarmatie, et les Slaves.*" Tom. I. p. 37.

ſtance

ſtance they have received the Greek name of NEON TEIXOΣ, or the New Wall. At preſent, there ſtill remains a ſtrong rampart erected by the Turks, and extending from the Black Sea to the Sivaſh: it is accompanied by a deep trench, which is ſtill in good condition, being defended by double walls built of free-ſtone. When it is conſidered, that the ſtones for erecting theſe fortifications could not be obtained from a nearer place than Saribulatſkoi-Priſtan, which is more than fifty verſts diſtant, the magnitude of the undertaking juſtly deſerves our admiration. The foſſe is about twelve fathoms wide, and twenty-five feet deep; but the height of the rampart has been ſomewhat reduced by the effects of time. The weſtern line of defence is five verſts and a half in extent from the entrance to the Black Sea; and preſents, on this ſide, three batteries, the ſtrongeſt of which cloſely borders on the ſea-ſhore. In the Eaſtern direction, the diſtance is computed to be three verſts to the ſtreight of Sivaſh; and there are only two batteries on this ſide, one of which is likewiſe contiguous to the oppoſite ſhore. The whole breadth of the iſthmus, being eight verſts and a half, nearly correſponds with the account given by Strabo, who computes it at forty ſtadia, about five of which are equal to one Ruſſian verſt; and thus affords a new inſtance of the ſcrupulous accuracy with which that ancient geographer has deſcribed the Black Sea, the Sea of Azof, and particularly the peninſula called Crimea.

As the Ruſſian word *Perekop* ſignifies an entrenchment of the iſthmus, the Tartar name *Or-Kapi* denotes the gate of the line, or fortification; indeed, the only entrance into the Crimea, by land, is over a bridge, and through an arched ſtone gate, both

both erected at the ſide of the fortreſs. Contiguous to the gate, in an eaſtern direction, and within the precincts of the foſſe, is ſituated the fortreſs of Perekop. It is a model of irregular fortification; which, together with the walls of its deep ditch, is conſtructed wholly of free-ſtone. It forms an oblong ſquare, extending along the trench which terminates the line of defence. On the ſide adjoining this line, there are no outworks; but, on the three other ſides, the fort is ſtrengthened by an additional deep foſſe, which however is half filled with luxuriant weeds; the whole amounting to one hundred and fifty-eight fathoms in length; and, when computed from the foſſe of the line, eighty-five in breadth. At the North-weſtern angle, there is a pentagonal baſtion, ſerving as an outwork; another of a ſexagonal form at the South-weſt, and a third with two angles at the South-eaſt. But, at the North-eaſtern angle, the ſexagonal baſtion is farther extended into the foſſe, ſo as to cover a narrow paſſage leading to a deep and excellent ſpring, riſing between this ditch and the interior fortification. The chief entrance to the fortreſs is near the Southern curtain, on the ſide of which a projecting demi-baſtion has been erected. Another outlet has been contrived at the eaſtern extremity. The inner fort, which is more elevated, and of a ſimilar ſtructure, extends to one hundred and ten fathoms in length, and ſixty in breadth. It is furniſhed towards the northern angles with two ſquare baſtions, that project on the foſſe of the line; and over the inner wall, there is a brick cavalier of a ſexagonal form, in the midſt of the northern curtain. At each of the two ſouthern angles, there is an irregular baſtion; and, in the centre of the curtain, appears the principal gate.

Over

Vol 2 Pl 1.

Gessler del.t

Mutlund Sculp.

Over this, I obſerved the figure of an owl, hewn in ſtone, being the peculiar coat of arms of TSHINGIS KHAN; which likewiſe appears to have originally belonged to the princes who reigned in the Crimea, and ought therefore to have been incorporated with the Great Seal of the Ruſſian Empire. Within the fortreſs, there are yet remaining a ſort of caſtle built of ſtones; ſeveral barracks of brick-work, but in a ruinous ſtate; and a moſque or *metſchet*. Laſtly, we met with a well in the caſtle, and another in the outworks.

The houſes of the ſuburbs of Perekop were formerly diſperſed in a very irregular manner, on the ſouthern ſide of the fortreſs; but they are at preſent ſituated at a diſtance of three verſts within the country; and, beſide ſeveral ſtreets and many booths, they include what is termed the *Armanſkoi Bazar*, or Armenian Mart. In the vicinity of the gate, however, there are only a few houſes, partly within, and partly on the outſide of the line; being inhabited by Ruſſian officers, appointed at the ſalt-magazine, or by thoſe belonging to the garriſon. When I firſt viſited the Crimea, the whole garriſon conſiſted of a detachment of two hundred men, commanded by a captain; but, ſince the year 1797, a whole battalion has been ſtationed at Perekop, the commanding officer of which is alſo governor of that fortreſs.

In the firſt plate, the reader will find a diſtinct view of the fortreſs of Perekop; of the gate and line of defence drawn from the ſide oppoſite to the Crimea; and of the buſtling commercial intercourſe, which uſually prevails there during the ſummer.

Although the Crimea is at preſent united to Ruſſia, Perekop will, on many accounts, always remain a poſt of the greateſt conſequence;

conſequence; in ſome reſpects to Ruſſia, and in others to the Crimea. If, for inſtance, the plague ſhould ever ſpread its baneful influence into Crim-Tartary; an event, which the conſtant trade carried on with Conſtantinople and Anatolia, might eaſily produce; or, if ſeditious commotions ſhould ariſe among the Tartars, whoſe loyalty is ſtill doubtful, in theſe caſes Perekop would effectually ſecure the empire, by cloſely ſhutting the barrier. On the other hand, this fortreſs not only renders every attempt at deſertions from the Crimea into Ruſſia very difficult; but if, in future, the project of opening free ports ſhould be realized, and thus the important commerce from the Black Sea to the Mediterranean, and to Anatolia, be vigorouſly promoted, Perekop would then afford the moſt convenient ſituation for a cuſtom-houſe. Farther, if the beſt ports of the Crimea were appointed, in the ſame manner as thoſe of Toulon and Marſeilles have been ſelected for all the ſouthern parts of France, in order to eſtabliſh places of quarantine for all ſhips navigating the Black Sea and that of Azof, ſo that all veſſels deſtined for Taganrog, Kherſon, and Odeſſa, ſhould be obliged to perform a certain quarantine at Sevaſtopol, Kaffa, and Kertſh, as has already been twice propoſed,—the important paſs of Perekop would for ever ſecure the open and more populous provinces of the interior parts of the empire from that terrible ſcourge, the plague. Thus, all danger might be obviated, not only from the ſea of Azof, the coaſts of which are in every direction expoſed to the contagion, ſo that they can with difficulty be protected; but alſo from the ports of Kherſon, Nikolaef, and Odeſſa. At the ſame time, the expenſe of maintaining various places for quarantines might be greatly reduced, and complete inſtitutions of this nature be ſpeedily eſtabliſhed.

During

During the prevalence of Eaſt winds, a diſagreeable ſmell from the *Sivaſh*, or Putrid Sea, is ſtrongly perceived at Perekop. It is nevertheleſs believed, that theſe vapours preſerve the inhabitants from thoſe intermittent fevers which were formerly very frequent in the Crimea; a remark which I have alſo heard in other places reſpecting the febrifuge effect of exhalations proceeding from the ſea-ſhore.

On the 29th of October, we purſued our journey towards *Sympheropol*, which, at that time, was the ſeat of the Tauridan Government.

The northern three quarters of the Crimean peninſula exhibit an irregular plain or ſteppe, which is occaſionally diverſified with deeper ſpots of ground, or hollow glens. The ſoil varies in its quality; but for the moſt part, and eſpecially at the angle which terminates between Perekop and Koſlof, it is either ſandy on the ſurface, or conſiſts of ſand combined with clay. The Tartars call this angle *Tarkhon-Dip*, and the Ruſſians, *Tarkhanſkoi-Kut*. In ſome diſtricts, for inſtance, from Perekop to the ſalt lakes, this plain is of a dry, clayey, ſaline nature, reſembling a marine viſcous mire, and is not unlike that of the Caſpian Steppe: it declines imperceptibly towards the ſalt lakes; and its ground was very ſlippery, in conſequence of the rain that had fallen during the night.

The diſtance from Perekop to *Armanſkoi*, or *Novoi Bazar*, is computed to be four verſts; but it appeared to be rather leſs. Eighteen verſts farther, we arrived at the ſouthern extremity of *Tuſla*, or the old ſalt lake *Staroë-oſero;* the ſteep banks of which are about ſix feet higher than its level ſhore, where the *Salſola ericoides* vegetates with great luxuriance. I forbear,

at preſent, to deſcribe this ſaline lake, as well as the others occurring between it and the Sivaſh; the exiſtence of which fully corroborates the above cited paſſage of Pliny. In the ſequel, I ſhall give a general ſketch of all the ſalt lakes in the Crimea that appear to have ariſen from the ſame ſource, and to poſſeſs ſimilar properties. It deſerves, however, to be remarked, that the inexhauſtible reſervoirs of ſalt in the vicinity of Perekop are, both with reſpect to their great abundance, and the large exportation of that commodity to Ruſſia, the moſt productive of the whole Peninſula. From this quarter, White and New Ruſſia, as well as Ruſſia Minor, and the province of Kharkof, are ſupplied with ſalt, which is conveyed to thoſe provinces during the ſummer, in numerous vehicles drawn by oxen. Formerly, therefore, a member of the Tauridan Chamber of Finances conſtantly reſided at Perekop, where a peculiar ſalt-office was then eſtabliſhed. According to report, this proved to him a very lucrative appointment; though Government has, at preſent, by farming out ſuch important branches of the revenue, more than doubled his former income.

After travelling twenty-ſix verſts, we arrived at the ſtation of *Tiſhoon*, or *Terekly-tſhuſoon*. Since the immortal late Empreſs viſited Taurida, all the principal roads of this country have been embelliſhed, at every verſt, with elegantly hewn triangular ſtones, pointing out the reſpective diſtances. Farther, at every tenth verſt, there has been erected a well-proportioned, and more conſpicuous, round column, the upper part of which is ornamented with an octagonal head, terminating in an obtuſe point. Theſe monuments, which will long reſiſt the effects of time, might have ſuperſeded the neceſſity of thoſe wooden

poſts,

poſts, which have recently been placed, for marking the diſtance of each verſt.

On leaving Tiſhoon, we paſſed over a handſome bridge arched with free-ſtone, and built by the Turks acroſs an arm of the Black Sea, which extends to a conſiderable diſtance into the country, and at length turns toward the North. We then croſſed ſeveral ſmaller bridges, erected over marſhy ſaline glens, or hollow grounds, which take their direction from the gently ſloping and viſcous ſteppe toward the Black Sea. The ſecond ſtage, being eighteen verſts diſtant from the laſt-mentioned place, is *Dürmeen;* where the uſual road, leading from Perekop to Koſlof, turns to the South-Weſt.

About halfway from the next ſtage, the ſteppe riſes imperceptibly; the ſoil becomes black, is occaſionally covered with a graſs ſward, and underneath exhibits the firſt beds of yellowiſh or reddiſh ſhell-lime, compoſed of fragments of bivalves and ſtratified oolites; the grains of which uniformly conſiſt of very ſmall teſtaceous particles. Two broad ridges, but with a level ſurface, alſo diſcover a ſimilar ſoil on the top, as well as in the lower ſtratum. On the firſt of theſe is ſituated the Tartar village of Kara-Kodſha, in the front of which, near the public road, we took notice of an ancient cemetery, diſtinguiſhed by peculiar tomb-ſtones, in the ſhape of obeliſks; a form which we had not hitherto obſerved in the Crimea.

After having paſſed the ſtage of *Aibar*, twenty-ſix verſts diſtant from Dürmeen, the ſteppe again preſented a yellow, clayey, and level ſurface. We then travelled twenty-two verſts, and arrived in the dark at the village of *Ablana*, which is divided into three diſtricts. The darkneſs of the night

obliged us to reſt at this place, which, beſide a moſque, or *metſhet*, has a *medreſs*, or ſchool.

Early on the 30th of October, after once more changing horſes at Mentlertſhik, ſixteen verſts from Ablana, we arrived about noon at Sympheropol, a town twenty-ſix verſts diſtant from the former place. Here my friend, M. Taranof, received me in the moſt obliging manner, and accompanied me to the winter-reſidence that had been prepared for my family.

Nothing can be conceived more gratifying, after an irkſome journey over barren and uniform plains, than a view of mountains, and a country preſenting hills and beautifully variegated woods, which are occaſionally interſected by the whimſical meanders of rivulets. In addition to theſe charms, the mountainous part of the Crimea alſo offers an uncommon variety of delightful proſpects, in the advanced autumnal ſeaſon. The agreeable ſurprize we experienced, on arriving at the pleaſant valley which is watered by the little river Salgir, may be eaſily imagined; eſpecially as our expectations were raiſed ſtill higher, by the view of diſtant and more elevated mountains.

The fine, and often very warm weather, which prevailed during the whole of November, and continued till December, afforded me frequent opportunities of collecting, at this late ſeaſon, the ſeeds of ſeveral rare plants; while the veſtiges of others inſpired me with new hopes of purſuing my botanical reſearches with greater ardour in the enſuing ſpring. The impaired ſtate of my health, however, ſet bounds to my zeal: for I had ſo ſeverely ſuffered during my long journey, that I could but ſeldom venture abroad; and was therefore obliged to paſs the months of December and January within doors, in order to recover ſome degree of ſtrength.

The

The winters, and the weather in general, are very unequal and variable throughout the Crimean Peninſula; both depending greatly on the different ſituation of mountains and vallies in the more elevated parts of the country. I ſhall enter into a more particular account relative to this ſubject in the outline which I propoſe to give in the ſequel, of the natural hiſtory of the Crimea; and content myſelf, at preſent, with briefly deſcribing the ſtate of the weather during the winter of 1793 and 1794. In the firſt half of November, the weather was uncommonly fine, dry, and pleaſant, with a regular Eaſt-wind; which, in this climate, is uniformly attended with a ſerene atmoſphere. Several days in this month were ſo warm, that the neighbouring mountains could not be aſcended without profuſe perſpiration; though there had occaſionally been froſts, and ſome ſnow had alſo fallen, in the preceding month of September; when the elevated regions were covered with rime, both of which however ſpeedily diſappeared. After the middle of November, we experienced a few cold days, together with a ſlight fall of ſnow, and hazy weather, which continued till the 27th. On this day, at half paſt eight o' clock in the evening, a ſlight ſhock of an earthquake was felt at Baktſhiſarai, Karaſſubaſar, and Perekop, but which was incomparably milder than that which convulſed the whole ſouthern coaſt of this Peninſula in the year 1790. On the ſame day, the wind changed to the South-weſt; and flights of buſtards, conſiſting of from ten to twenty brace each, were perceived withdrawing towards the mountains, whither they were probably induced to reſort by the heavy ſnow that had fallen on the ſteppe, and in the peninſula of Kertſh. At the ſame time, however, a thaw commenced with a tempeſt

a tempeſt proceeding from the Archipelago, and accompanied with alternate ſhowers, which ſwelled the hilly rills, and precipitated them from the mountains with a violent noiſe. The month of December again produced many ſerene days; during which the horizon, towards the North where the ſteppe of Perekop preſents an open view, conſtantly terminated in dark clouds of ſnow, ſuch as are uſually obſerved here in the cleareſt days of autumn and winter.

In the firſt days of January 1794, the froſt recommenced, and was on the fifth ſucceeded by a heavy ſnow, which covered the plain to the depth of nine inches, and continued till the end of the month. This remarkable phenomenon was recorded by excurſions on ſledges; to which, however, the inhabitants of the Crimea afterwards became very indifferent, in conſequence of the ſevere winters they experienced between the years 1798 and 1800. In the beginning of February, there was a ſudden and complete thaw, and the ſtarlings made their firſt appearance on the 6th. A cold eaſterly wind, with froſt, followed that from the South-weſt, which had hitherto prevailed; and on the 12th, the change of the moon, after a few gentle ſhowers, produced ſerene weather; ſo that on the 13th and 14th, during mild weather and ſunſhine, vegetation rapidly advanced on the ſouthern ſide of the mountains, and in the groves. Thus we obſerved varieties of the *Crocus*, and *Viola odorata*, preſenting their firſt bloſſoms; the *Adonis verna*, *Hyacinthus racemoſus*, and *Ornithogalum piloſum*, ſhooting forth their ſtems; and the plough commencing its early labours in the field. On the 16th, however, at noon, a ſudden North-eaſt wind was again productive of froſt and ſnow. On the 18th there

aroſe

aroſe, with the new moon, a violent tempeſt, which continued with almoſt unabated fury, and with little variation from the North-eaſt to the South-eaſt, till the middle of March, when it ceaſed with the ſucceeding new moon. By this unuſual ſtate of the atmoſphere, vegetation was evidently checked, both from the ſevere cold, and the dry nature of eaſterly winds; inſomuch, that the cornel-tree ſcarcely began to flower about the latter end of March; though, in former years, its bloſſoms often expanded early in the month of February.

Throughout the winter, however, the cold never exceeded ten degrees below the freezing point, according to Reaumur's thermometer; and, though the Boſphorus was ſeveral times covered with ice, yet this never become ſtationary. On the other hand, the ice drifted from the ſea of Azof, flowed the whole winter, and it uſually continues till a late period of ſpring. This circumſtance accounts for the coolneſs of the weather during the vernal months; as the ice from the lakes of Ladoga and Onega generally produces a ſimilar effect at Peterſburgh, though the rivers in the ſouthern parts of Ruſſia are open at an earlier ſeaſon.

The town, which I choſe for my winter-reſidence, is known by two different names. While ſubject to the government of the Tartars, it was called *Akmetſhet*, or White Church; but, under its new maſters, the ancient Greek name of *Sympheropol* has been reſtored to a large and charming plain ſituated towards the North of the old town; and on which are built the Palace of the Governor, and the Halls of Juſtice for the whole Crimea.

Crimea. It was farther intended to raiſe, on this ſpot, a modern town, with a beautiful cathedral. Hitherto, however, a few houſes only have been built according to ſuch deſign; ſo that, ſince the year 1798, the Tartar name of the old town has again prevailed.

The ſituation of Akmetſhet is delightful; as the elevated plain, on which it ſtands, riſes ſtill higher towards the South-eaſt; is ſurrounded on almoſt every ſide, at irregular diſtances, by mountains and hills of calcareous marl; and it is interſected, on its eaſtern ſide, by the rapid courſe of the Salgir; the oppoſite right bank of which, being conſiderably lower, preſents a pleaſing view of meadows and gardens. This peculiar ſite, however, expoſes the town of Akmetſhet in a remarkable degree to the tempeſts that are ſo frequent in this country, but eſpecially to thoſe from the South-eaſt, which penetrate through the dales interſecting the oppoſite mountains; as likewiſe to the Eaſt and North-eaſt winds which, like the northern gales, blow over the plains; and alſo to thoſe proceeding from the South-weſt, or from Sevaſtopol, that are uſually accompanied with rain; while thoſe from the Eaſt are attended with a ſerene ſky and dry weather. On the plain formerly deſigned for enlarging the town of Sympheropol, there has been erected an elegant reſidence for the Governor; which, ſince the tranſlation of the ſeat of government, has been converted into barracks; and, at the diſtance of about half a verſt, there are ſeveral edifices intended for courts of juſtice. Beſide theſe, we met only with a few ſcattered habitations, among which, the School-houſe deſerves to be mentioned. Between the original palace of the governor and the old town, or the bank of the Salgir, Suwarof (whoſe

(whoſe name ſurpaſſes all titles*) has erected a redoubt, which is farther ſtrengthened by the natural trenches gradually formed by the currents of rain-water; and in which, according to the plan now abandoned, it was the intention of Government to build a cathedral. During the latter period of the preceding reign, building was accordingly commenced in ſeveral quarters, eſpecially on the declining bank of the Salgir, in a weſtern direction towards the fields; and, in the old town likewiſe, a few reſpectable houſes have been finiſhed along the banks of this rivulet. Since the Crimea, however, has been incorporated with the provincial government of New Ruſſia, of which it at preſent forms a ſeparate diſtrict, the riſing proſperity of this town has very conſiderably decreaſed; and many of the deſerted houſes are already in a ruinous ſtate; becauſe the commercial intercourſe is checked, in conſequence of the diminiſhed number of conſumers, ſo that the inhabitants have been induced to diſperſe.

The old city of Akmetſhet is built in the manner of all Tartar towns; it exhibits throughout narrow ſtreets croſſing each other at irregular angles, being unpaved, and extremely filthy. As all the courts or premiſes are encompaſſed with high walls, and the dwellings, built within theſe courts, are very low on the ground, little of ſuch habitations can be perceived; and a ſtranger is apt to imagine that he is wandering among half-ruined walls raiſed with rough lime-ſtone. The houſes are uniformly built of a white calcareous foſſil reſembling marl, which is very common in this country, cannot be ſplit into

* This unqualified praiſe will, probably, be conteſted by the impartial hiſtorian. *Tranſl.*

flags, but breaks in irregular maſſes; and in which are obſervable many of thoſe petrifactions, that are known by the name of lenticular ſtones. When the inhabitants employ this foſſil in building, they moſtly uſe it in a rough ſtate, excepting thoſe pieces intended for the corners, or for framing the windows and doors of their dwellings. In all the Tartar towns of this peninſula, the mortar is made of clay, more or leſs combined with lime, to which a certain proportion of ſand is added, in order to render it more durable. Out-buildings, or offices, are generally conſtructed of plaſtered wicker-work; but the roofs are covered with light hollow tiles diſpoſed on a ſtratum of interwoven oſiers, and placed upon clay. Theſe roofs, however, unleſs they be ſecured with lime, require frequent repair, in conſequence of the prevailing tempeſts.

Beſide the governor's houſe already mentioned, which was formerly embelliſhed with a fine garden, and is now converted into barracks, there are at Akmetſhet only the following public edifices; namely, three Tartar metſhets, or houſes of prayer*, with their ſteeples (miſgir); from the top of which the prieſt (mulla) calls the faithful to prayers, four times in twenty-four hours; a very indifferent Græco-Ruſſian church, which ſerves for a cathedral; and another of ſome conſideration, built on the market place by a ſociety of Greeks who ſettled here in 1797; an Armenian chapel; a Tartar bath, ſince converted into a public priſon; and a number of barracks ſituated in the higher, or South-eaſtern, part of the town. Near the city, on the left bank of the Salgir, four mills are turned by a canal

* Formerly there were five in this place, but two of theſe metſhets have been demoliſhed.

proceeding

proceeding from this rivulet; and a little lower are two others, one of which is contiguous to the Salgir, and the other is erected on a farm belonging to the late Governor Shegulin; which, as well as the village of Bakhtſhieli, is only two verſts diſtant from the town. The laſt of theſe mills is turned by the little brook Bala-Salgir, which receives a ſtill ſmaller one, denominated Abdall. In their vicinity, we meet with ſeveral excellent orchards, the moſt remarkable of which is that belonging to M. Hochfeld, Counſellor of the College, who has beſtowed conſiderable pains in eſtabliſhing it, together with a diſtillery.

Akmetſhet was, till lately, the reſidence of the Kalga-Sultan; who, in point of rank, was ſecond only to the Khan of Crim-Tartary; and who was always choſen from the race of Khans bearing the name of Ghirei. The former reſided in a handſome palace, ſituated above the town, on the left bank of the Salgir; but it was entirely demoliſhed ſhortly after the ſubjugation of the Crimea. The ſpot, on which this edifice was erected, can be aſcertained only by a creek of the Salgir, that contains the water of a copious ſpring riſing at the foot of a ſteep bank, compoſed of calcareous rock. Here the Kalga-Sultans formerly kept a few pleaſure boats, but the ſite of their palace is now occupied by breweries.

The Salgir, in general, is paſſable in many places by perſons in boots; being an inconſiderable rivulet that glides over a wide ſtony bed. When, however, ſnow happens to fall, and ſuddenly to diſſolve on the mountains, or after heavy ſhowers of rain from the higher countries, the Salgir ſwells to ſuch an extent, for the ſpace of twenty-four or thirty-ſix hours, and

ſometimes even for ſeveral days, that it completely fills its ſtony bed; and its ſtream flows with the noiſe of a formidable torrent, ſweeping away men, cattle, and carriages, ſo as to render its paſſage extremely dangerous: its water is then unfit for culinary or domeſtic uſe, until the clay, which renders it turbid, has ſubſided. To remedy this inconvenience, the inhabitants of the town formerly poſſeſſed an aqueduct, by means of which water was conveyed through ſubterraneous pipes, to a diſtance exceeding three verſts, from a ſpring riſing near the weſtern heights, over which the road leads to Bakhtſhiſarai. Although this neglected work was reſtored to its former uſeful ſtate, in 1795, yet it was ſoon after deſtroyed by the avaricious Gypſies, who employ themſelves in carrying freſh water about the town in caſks, ſo that it is, at preſent, of no ſervice. Hence the people are compelled to drink the water of the Salgir, or of ſome other ſprings iſſuing from its lower bank; which, however, is ſlightly impregnated with calcareous matter.

There are but few kinds of fiſh frequenting the Salgir. Loach and minnow are the moſt common; and a ſmall ſpecies of barbel is the largeſt of the finny tribe in this rivulet. Trout are caught only near its ſource, and they never approach the environs of the town. On the other hand, great numbers of craw-fiſh are taken in the deeper parts of this ſtream, as well as in the ſurrounding brooks, and they poſſeſs an exquiſite flavour.

The calcareous mountains in the neighbourhood of the Salgir, like thoſe extending to the rivulet Alma on one ſide, and to the brook Suya towards the eaſt on the other, preſent only a white or yellowiſh limeſtone, mixed with clay, of a moderately hard and porous conſiſtence. This foſſil is ſometimes found in a laminated

laminated ſtate; but, in other ſituations, it is diſpoſed in thick maſſes apparently caſt together, and occaſionally preſents a greater or leſs number of petrifactions, the moſt common of which are thoſe termed lenticular: they vary in ſize from a ſmall lentil to that of a guinea, or are ſtill larger *.

In various places, for inſtance, on the left bank of the Salgir above the town, as well as towards the Alma, large ſhells of the diluvian oyſter, and of another large and weighty ſpecies, are found in this lime-ſtone, changed into a greyiſh ſpathy ſubſtance. Theſe ſhells are ſingly ſcattered at the foot of the calcareous rocks, and eaſily ſeparate from the mineral. Among other petrifactions, we alſo occaſionally obſerved the creſted oyſter, the crow's ſtone, or *gryphites*, a few diminutive belemnites, or finger-ſtones, and a ſtill ſmaller number of the grains of whelks or ſpiral ſnails. On ſeveral heights, eſpecially in a quarry immediately on the borders of the town, near the road leading to Bakhtſhiſarai, ſome ſtrata of this limeſtone are of a chalky nature, being interſperſed with impreſſions of very thin ſhells. In other ſituations, we met with layers of clay and ſoft marl, generally above thoſe of calcareous ſtone. In a few places, however, there appeared between the latter a mixed

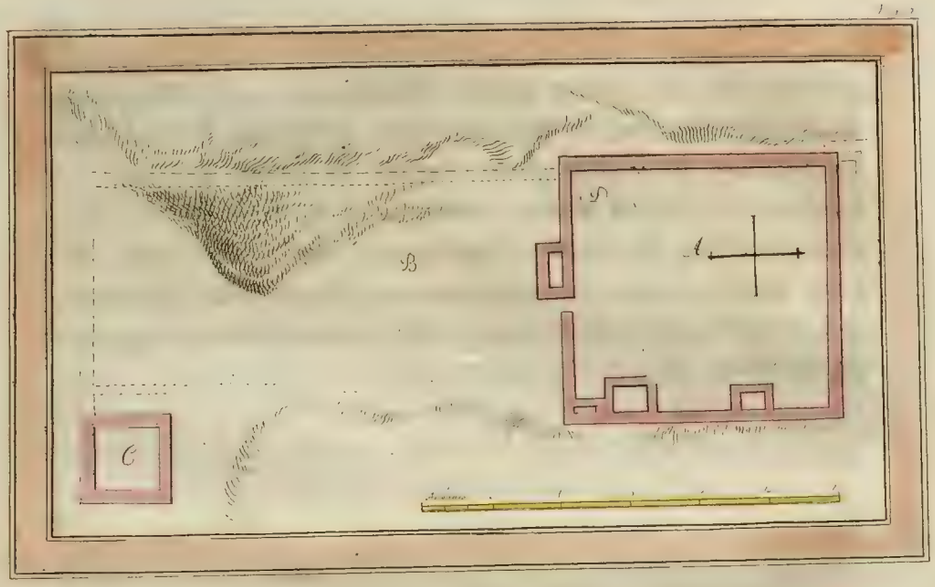
* I cannot on this occaſion omit to expreſs my opinion reſpecting a foſſil, the origin of which has not hitherto been explored. As its external ſhells have no orifice whatever, and may eaſily be ſeparated from each other; while its internal cellular texture, conſiſting of annular diviſions and lateral thin ſcales, has not the leaſt reſemblance to the abode of a teſtaceous animal, but rather to the inner ſtructure of a cuttle fiſh-bone; I am induced to conjecture, that the lenticular ſtones have likewiſe ariſen from the ſhell or bone of a peculiar gregarious ſpecies of *Doris*, or *Sepia*, which formerly inhabited the deep; has in proceſs of time been mixed with the calcareous mire depoſited by the ſea; and thus at length become completely extinct, ſo that we poſſeſs no account of its living ſtate.

foſſil,

foſſil, conſiſting of a yellowiſh ſandy marl, and ſmall roundiſh quartzoſe pebbles, being partly decayed on the ſurface, and ſcattered among the black or loamy mould: hence an obſerver might eaſily be induced to believe, that the water formerly flowed over ſuch regions, and cauſed the roundiſh form of theſe pebbles. All the layers of the horizontal maſſes decline imperceptibly towards the North; and moſt of the mountains which they conſtitute, appear precipitate towards the South or South-eaſt, in which direction the ſtratifications riſe; ſo that their edges, at a diſtance, preſent a ſerrated form, or as if they had been broken off by a violent commotion of the elements. The view of the rocky precipices and walls in the valley watered by the Salgir, as well as in many other dales compoſed of this calcareous and horizontally arranged foſſil, is the more remarkable and ſtriking, as it ſeems to be of modern origin, and extends over the whole plain of the peninſula. All theſe maſſes are, to a certain height, corroded and waſhed underneath, in a manner exactly ſimilar to that produced by the waves of the ſea, after having watered them for a conſiderable time. It is difficult to decide, whether this ſingular effect ought to be aſcribed to the former, and doubtleſs more elevated, ſtate of the Black Sea, or to the decompoſing influence of the atmoſphere. The ſituation of ſuch vallies above the preſent level of the water, and the height to which theſe remarkable calcareous rocks extend in different plains, certainly deſerves to be aſcertained by the *niveau*.

The whole of this calcareous bed of mountains produces many beautiful and ſome peculiar plants, which ſpread in a weſtern direction beyond the Karaſſuk. The moſt diſtinguiſhed

guiſhed are, the buſhy *Salvia Habliziana*, a tall *Hedyſarum*, with white flowers, veined with red; a ſpecies of *Gypſophila*, the bloſſoms of which grow together in round bunches; an *Onoſma* with yellow flowers, excluſively found in the Crimea, and reſembling the *Onoſma ſimplex;* the admirable *Carduus elegans*, *Carlina lanata*, *Satureia montana*, *Convolvulus Cantabrica*, and *terreſtris*, as well as many other more common vegetable productions.



Journey through the South-Weſtern Quarter of the Crimean Peninſula.

In the beginning of March, the weather became ſo agreeable, that I could no longer reſtrain my impatience to explore the remarkable Tauridan Peninſula. I therefore commenced my journey, and left Akmetſhet on the eighth of March, directing my courſe towards Bakhtſhiſarai, which is computed to be thirty-one verſts diſtant.

The way to the river Alma leads partly over elevated plains, and partly through vallies of a pleaſing verdure, between calcareous mountains, ſituated at a conſiderable diſtance from each other, and preſenting pit-coal, as well as white layers and terraces; the South ſide of which is peculiarly diverſified. With regard to ſoil, theſe hilly regions are nearly ſimilar to thoſe near

near the Salgir; and they alſo produce petrifactions ſcattered in the manner already noticed. In ſome of them we found petrified creſted oyſters, in a complete ſtate of preſervation. At the diſtance of three verſts from the town, we croſſed, near a clayey hill, the very ſource of the ſpring which formerly ſupplied the town with water; and which, after joining with a ſmall muddy rivulet, flows into the Salgir. Three verſts farther, in a level valley, we paſſed the brook of Bulganak; which, though inconſiderable near its ſource, and dried up during hot ſummers, is nevertheleſs conſidered to be one of the principal rivers of the Peninſula, as it diſcharges itſelf directly into the ſea. Sixteen verſts from Akmetſhet, we at length arrived at the banks of the Alma, in an open, pleaſant, and uncommonly fertile country, which is richly embelliſhed with villages. Along the banks of this rivulet are thoſe extenſive paſtures, which the Khans of the Crimea uſually appropriated to the ſupport of their ſtuds. On the right, we obſerved the village of *Khaneli*; and ſome others, among which that of Hadſhirbecke, with its numerous Lombardy poplars, preſented a beautiful proſpect.

The river Alma riſes from the woody dales, ſituated between the Tſhatyrdag, or Tent-mount, and the oppoſite lofty Babugan-Yaila towards the South-weſt. It receives in its courſe, beſide ſeveral ſmaller ſtreams, two conſiderable brooks, namely, the Kuiſu and Menei, the ſource of which is at the foot of the former mount. When the ſnow on the mountains is ſuddenly diſſolved, or after heavy rains, the Alma ſometimes becomes more formidable and dangerous than the Salgir. Scarcely a year elapſes, in which ſome perſons are not either drowned, or

obliged to ſave their lives by ſwimming. Not leſs hazardous is the rivulet Badrak, which we croſſed ſhortly after the Alma, at a little diſtance above its union with the latter; on account both of the cavities which that rivulet readily forms in its ſoft bed, and of the extenſive vallies from which it collects its rain-water. We now travelled over riſing heights, terminating in a regular plain that extends to Bakhtſhiſarai; and theſe, with their ſteep ſouthern terraces, contribute to form the deep narrow valley, in which that town is concealed. About four verſts from this place, there was formerly a country-reſidence of the Khan; and, near the road, an excellent fountain encompaſſed with free-ſtone; but which unfortunately have not eſcaped the general devaſtation.

We had arrived very near Bakhtſhiſarai*, which is hidden in a valley towards the left; and into which we deſcended by a ſteep road, without ſeeing any part of the town. It occupies a narrow dale, extending from South South-eaſt to North North-weſt, being incloſed on both ſides with high rocky terraces, conſiſting partly of layers of cretaceous lime-ſtone; which, particularly on the northern ſide, form curious configurations of corroded and projecting rocks, circular excavations, and ſeveral grottos. The ſmall brook *Dſhuruk-ſu*, or Fetid Water, flows through this valley into the Katſha, divides the town longitudinally into two parts, and well deſerves that name; becauſe it carries off the impurities of the ſtreets and many common ſewers, into which the aqueducts are directed for ſuch purpoſe. This contrivance greatly contributes to fertilize the cabbage-fields in the valley immediately below the town; for the

* *Bakhtſhiſarai* literally ſignifies a palace ſituated in a garden.

irrigation

irrigation of which the water of the Dſhuruk-ſu is chiefly employed, being conducted through canals along the mountainous ſide; ſo that the ignorant believe this element to flow upward in the manner of a fountain. The ſtreets being nearly a verſt in breadth, on both ſides of the brook, and two verſts and a half in length, are built on a gradual aſcent above each other, very crooked, narrow, mean, irregular, and in a moſt filthy ſtate; but they are interſperſed with orchards. Theſe are ornamented with Lombardy poplars, which, together with the numerous turrets of the moſques, and the handſome chimnies of dwelling-houſes, that are in other reſpects moſtly of a wretched conſtruction, afford pleaſing views of this ancient reſidence of the Tartar Khan. I have therefore cauſed one of theſe proſpects to be drawn, as a ſpecimen taken from the upper part of the town, where the palace of the Khan is ſituated; and which is repreſented in the ſecond plate.

The principal ſtreet, on the right bank of the Dſhuruk-ſu, leads to the palace, and is on both ſides, for the moſt part, lined with miſerable booths, erected partly of wood beneath the piazzas of the houſes; but the ſtreet is ſo narrow that, in many places, two carriages cannot paſs without the greateſt difficulty; an inconvenience which is greatly increaſed by a wretched pavement. Many others are ſcarcely ſo broad as to admit room for one carriage, and ſome of the lanes can be frequented only by perſons on foot, or on horſeback. On account of the copious mud, however, broad ſtones have been laid in moſt of the ſtreets for the accommodation of paſſengers on foot.

The principal embelliſhments of Bakhtſhiſarai are, its moſques, or metſhets, it ſchool-houſes, or medreſs, its baths, and the

Khan's palace, together with the ſepulchres. There are thirty-one metſhets in this town, moſt of which are well built of free-ſtone, and ſurrounded with lofty towers of elegant workman-ſhip; farther, a church belonging to the Greeks, another to the Armenians; two ſynagogues; and three Mahometan ſchool-houſes. Two baths have been conſtructed here in the Turkiſh ſtyle, with handſome vaulted cupolas; and there are likewiſe ſixteen large buildings, termed *khans*, or inns, ſerving both as lodgings for travellers, and as warehouſes, ſix of which are uncommonly capacious, and are built of ſtone; twenty-one taverns; ſeventeen Tartar coffeehouſes; five mills turned by the brook Dſhuruk-ſu; and five hundred and ſeventeen ſhops. In this number are included one hundred and twenty-one, where ſilk ſtuffs, and other commodities, are expoſed to ſale by the yard; forty-one in which ſaddles, and other articles of leather, are elegantly manufactured; one hundred and thirty-five for proviſions; twenty-four for ſhoe-makers; twenty-three, in which large and ſmall Tartar knives, of great celebrity on account of their ſuperior temper, together with other cutlery, are manufactured in great perfection; five braziers' ſhops; ten kept by barbers; nineteen by taylors; ſix by ſilverſmiths; five by gun-ſtock-makers; three ſhops, in which ready-made ſhoes are ſold; nine timber-yards; five manufactories of rope, cord-age, and hair-lines; eight ſhops kept by coopers; ſeven for making and ſelling felts of wool, and clokes of a ſimilar texture, which are worn in rainy ſeaſons; four earthen-ware ſhops; five, where tubes for tobacco-pipes are made together with mouth-pieces; twenty bakers' ſhops; thirteen tan-yards, and Morocco manufactories; ſix blackſmiths' forges; thirteen ſhops, in

in which the Tartars ſell *Buſa*, a ſtrong liquor, brewed from millet-ſeed; thirteen poſſeſſed by tallow-chandlers, and ſeven by ſculptors.—The number of dwelling-houſes in this town amounts to 1561; and the whole population conſiſts of 3166 males, and 2610 females. In this calculation are included, 204 Greeks of both ſexes, among whom there are fourteen of noble extraction, and forty-two merchants; farther, fifty-one Armenians; 1162 Jews, 420 of whom are regiſtered as merchants; and nearly 3000 Tartars, in which number are comprehended twenty noblemen, 237 merchants, 173 prieſts, and ſeventy-eight ſtudents of divinity. According to a privilege granted by the late Empreſs, the Tartars maintain abſolute poſſeſſion of this town, of which no Ruſſian is allowed to become a citizen. Hence theſe natives, and the Jews, are its moſt numerous inhabitants, both being governed by their own magiſtrates.

The Khan's palace deſerves particular notice. It is ſituated towards the weſtern quarter of the town, on the ſouthern declivity of the valley contiguous to the river; and (as is diſtinctly repreſented in the annexed drawing taken from the oppoſite North-ſide) conſiſts of various dwellings and offices built without any order, and encompaſſing ſeveral court-yards. We entered the firſt court by means of a gate and ſtone bridge, erected over the Dſhuruk-ſu, which is here confined by a quay. It contains only a few common habitations; but towards the left appears the ſpacious and beautiful metſhet of the Khan, with its two turrets. Farther on are the ſtables; and, on the right, is the Khan's palace, properly ſo called, which is embelliſhed with an additional ſtory. In its upper part, this court is encloſed by the walls of an orchard, ſituated on a riſing ground

next the valley, and interſected by terraces. A gate, over which rooms have been conſtructed, leads on the right to the inner palace yard; and here the entrance to the palace itſelf is in the left corner, through a ſpacious lofty porch, enlivened by ſeveral caſcades. In this place, by pulling down ſome of the ſmaller offices, room has been contrived for a convenient ſtair-caſe leading to the upper apartments. Beſides, there are ſeveral rooms, and a capacious council chamber below. The apartments and galleries above-ſtairs, are decorated totally after the Turkiſh manner, with carpets and *divans*, or low ſofas, oriental landſcapes, clumſy paintings on the walls, artificial flowers, chimney-pieces, and ſtained glaſs windows. The alterations we noticed in ſome of theſe apartments, were made for the reception of the Empreſs in 1787, in order to embelliſh them more in the European ſtyle. Amidſt the dwellings appropriated to the Khan, there is a beautiful oblong ſpot planted with roſe-trees, and ornamented with arbours; above which, a fountain plays its waters into ſtone baſons gradually declining a few ſteps beneath the ſurface of the ground. Contiguous to the Khan's reſidence, are the ſmall, inelegant, and already decayed chambers and offices of the Haram. Over theſe is raiſed a *Kioſk* reſembling a cage, in which the Khan uſually kept his falcons; and whence the North ſide of the valley, with its diverſified rocks, near the upper extremity of the town, preſents above the metſhet an incomparable and moſt romantic view. A few inferior gardens have alſo been planned between the buildings of the Haram; and there is likewiſe a ſmall bath conſtructed of ſtone: but the more capacious marble bath, which formerly ſtood near the palace, has been entirely demoliſhed.

The

The large orchard being ſituated on a riſing ground, is divided into four terraces, incloſed with free-ſtone; and which are mounted by a progreſſive flight of ſtone-ſteps placed ſideways for ſuch purpoſe. The lower terrace is entirely covered with arbours of the vine; but the upper ones, with fruit-trees of every kind, grafted from the beſt ſorts, and eſpecially with pears of an exquiſite flavour.

The grand metſhet in front of the palace is one of the moſt elegant temples, and alſo the moſt ſpacious edifice of the kind in Bakhtſhiſarai. In the interior there is a ſuperſtructure, or box, furniſhed with windows, formerly appropriated to the family of the Khan; and the aſcent to which is from without, by a ſeparate ſtair-caſe. At preſent, only ſtrangers, and particularly females, are admitted to this box, when they are deſirous to witneſs the religious ceremonies of the Tartars; and eſpecially the noiſy and whimſical dances of their derviſes on Fridays, or on the evenings of their feſtivals, without interrupting their devotion.

Behind this metſhet is the commencement of a large burying-ground, which progreſſively riſes in a line with the buildings and gardens. Here are interred all the deſcendants of the Khan family, together with the principal murſas, or nobles, and prieſts; ſo that it abounds with funeral columns hewn of ſtone; among which thoſe erected to the memory of males are diſtinguiſhed by the form of a turban. In the ſame place, at a ſhort diſtance from the church, we met with two elegant modern ſepulchral vaults, contiguous to each other, and a third of an earlier date. The former are filled with coffins of the Khans, depoſited on the ground, and covered with black and green ſtuffs. One of theſe vaults was built by Hadſhi-ghirei. A little farther upward

ward may be ſeen the romantic tomb of Mengli-ghirei. It is ſurrounded with arches of brickwork, and beneath theſe it is ſhaded with vines and other foliage. On the higheſt ſpot, near the border of the uppermoſt garden-terrace, we obſerved the elegant mauſoleum of the Georgian ſpouſe of the valiant Khan Crim-ghirei, in a vault repreſenting a cupola, the top of which is embelliſhed with a gilded globe. That of the Khan, and his brother, ſtands between the metſhet and Hadſhi-ghirei's tomb, having the form of a large ſarcophagus raiſed of ſtone, being ornamented with the uſual column that repreſents a turban on the top, and being ſhaded by the foliage of plum and other fruit-trees. In conſequence of an order iſſued from the Imperial Court, all the buildings of the Khan's palace are kept in as complete a ſtate of repair as poſſible, not only with reſpect to their external ſtructure, but alſo in the houſehold furniture; both of which exhibit a model of rude Aſiatic workmanſhip.

The names of the ancient Khans, whoſe remains are preſerved near the principal metſhet of this palace, were explained to me in the following order. Thoſe in the firſt mauſoleum are:

Batyr-ghirei, died in 1051 of the Hegira, or 165 years ſince.
Iſlam-ghirei, died in 1066 of the Hegira, or 150 years ſince.
Mekhmet-ghirei, died in 1075, or 139 years ſince.

In the ſecond mauſoleum are depoſited:

Adil-ghirei, died in 1082 of the Hegira, or 184 years ſince.
Murat-ghirei, who deceaſed in 1093, or 120 years ſince.
Safa-ghirei, died in 1104, or 111 years ſince.
Hadſhi Selim-ghirei, died in 1117, or 99 years ſince.
Devlet-ghirei, died in 1125, or 90 years ſince.

Saadet

Saadet-ghirei, died in 1137, or 71 years ſince.

Kaplan-ghirei, died in 1149, or 65 years ſince.

Mengli-ghirei, died in 1154, or 62 years ſince.

Selamet-ghirei, died in 1156, or 60 years ſince.

Beſide the vaulted tombs are interred:

Selim-ghirei, died in 1161 of the Hegira, or 55 years ſince.

Arſlan-ghirei, died in 1180, or 36 years ſince.

Crim, or Kerim-ghirei, died in 1182, or 34 years ſince.

The elegant upper mauſoleum, ſituated beyond the gardens, contains the body of the once beloved ſpouſe of Crim-ghirei. This princeſs died in the year 1176 of the Hegira, or 40 years ſince (computed from the year 1798): ſhe profeſſed Chriſtianity, and her name was Dilara Biketz.

The moſt commendable circumſtance in Bakhtſhiſarai, as well as in many other Tartar towns, is the manner of obtaining water from diſtant heights, by means of ſubterraneous earthen pipes, either for the conſtant ſupply of public fountains, or for conveying it to the premiſes of the principal and opulent inhabitants. Thus, the ſuperfluous water diſcharged from ſtone reſervoirs, ſerves partly to irrigate the ſmall gardens attached to town-houſes, and, partly, by means of pipes laid in a ſloping direction, to cleanſe the common ſewers, ſome of which are contiguous to the public founts; ſo that theſe aqueducts not only carry off all excrementitious matter, but alſo the ſweepings of the ſtreets, both being conducted into the brook Dſhuruk-ſu. The Tartar police is remarkably vigilant over the regulation of theſe canals, which are ſupported at the public expence; though, in other towns, for inſtance, at Akmetſhet and Kaffa, they have been deſtroyed through mere malice and neglect.

Notwithſtanding the uncleanlineſs prevailing in its ſtreets, together with the cloſe and damp mode of building, the town of Bakhtſhiſarai is generally reputed to be a healthy place. This circumſtance may probably be owing to the continual current of air blowing through the narrow valley, which is not confined even at its upper extremity. Being completely ſheltered from the North winds, its ſite is uncommonly warm: hence the peach, almond, and other fruit trees, as well as the vernal plants, preſent their bloſſoms at a very early period; and the weather is generally mild during the winter, while other regions of the Crimea experience ſevere froſts. All the proviſions and neceſſaries of life are amply ſupplied from the populous countries watered by the Alma and Katſha, as well as from the mountainous parts, and are ſold at reaſonable prices.

The trade of this town is likewiſe very conſiderable, in conſequence of the adjacent villages, and the frequent viſits made thither by the neighbouring Murſas, who generally travel on horſeback: thus a comfortable ſubſiſtence is ſecured both to the merchant and to the manufacturer.

At the diſtance of ſcarcely three verſts from the upper part of Bakhtſhiſarai, in a right line, exactly at the beginning of the narrow dale whence the Dſhuruk-ſu derives its ſource, we deſcried *Dſhufut-Kalé*, a noted fortreſs of the Jews, which is viſited by all travellers. It is ſituated on a lofty calcareous promontory, extending from the South, and terminating between the valley laſt mentioned, and another with which it is connected in a South-weſtern direction. There is a coach-road leading

leading to this place, and croſſing the heights which confine the town of Bakhtſhiſarai towards the South. It then proceeds round the latter of the vallies, as well as a collateral one; is in its higher parts apparently hewn through the bare lime-ſtone rock; and is about five verſts in length. A much ſhorter road has been made for travellers on horſeback, who advance directly from the capital of Crim-Tartary over the riſing ground of the valley, paſſing in its lower part a Greek convent, and aſcending the Jewiſh town by the ſame foot-path, on which the water is carried thither on aſſes' backs, in ſmall oblong caſks faſtened to the ſaddle on both ſides of the animal; and each of which is ſold at five kopeeks.

At the entrance of the South-weſtern valley, contiguous to the town, we noticed the burying ground of the Jews, which is ſhaded with beautiful trees. It contains very decent tomb-ſtones diſpoſed in rows, and moſt of which are hewn after a certain model reſembling a ſarcophagus, with raiſed ſtone tablets at the extremities, in ſhape not unlike the gables of houſes. Some of theſe monuments are inſcribed with Hebrew characters. This little valley of Joſaphat is ſo highly valued by the Jews, that, whenever the ancient Khans wiſhed to extort from them a preſent, or to raiſe a *voluntary* contribution, it was ſufficient to threaten them with the extirpation of thoſe ſacred trees, under the plauſible pretence of wanting fuel or timber.

Dſhufut-Kalé commences on the narroweſt part of the promontory. It is well incloſed, partly by walls, and alſo by ſtone-buildings, both on the higher extremity, and towards the declivity of the mountain, which extends beyond the town. There are two outer gates in this place leading to each of the

ſides before alluded to, and which are locked during the night. Although the ſtreets are crooked, narrow, and have a rocky bottom for their pavement, except the principal road, which is provided with broad flags for the accommodation of perſons on foot; yet, on the whole, they are remarkably clean. In the centre of the town there is a third gate, by which its former ſize and preſent enlargement may be eaſily aſcertained. Contiguous to this gate is the mauſoleum, which, according to tradition, has been erected for a daughter of Toktamyſh-Khan. It conſiſts of two ſepulchral vaults raiſed one above another, with an ornamental arched portico on its weſtern ſide. This princeſs was artfully ſeduced by a murſa, or nobleman, who fled with her to the fortreſs, which, at that time (being about 350 years ſince), was in the poſſeſſion of the Genoeſe. Many houſes in Dſhufut-Kalé, as well as a metſhet, then belonged to the Tartars. The ſynagogue is a fine edifice embelliſhed with a ſmall garden, for the celebration of the Feaſt of the Tabernacles. All the court yards are, according to the Tartar mode of building, encompaſſed with high walls; and the whole is conſtructed of raw lime-ſtone, plaſtered with clay. The place contains about two hundred dwelling-houſes cloſely built together; and the population of both ſexes does not exceed 1200 perſons. They are excluſively *Karaites*, or, as they call themſelves, *Karaimes;* and they receive no other Jews into their community, excepting the Poliſh Karaites, who, like the former, reject the Talmud. Their bibles are alſo furniſhed from Poland; but their dreſs reſembles that of aged Tartars, whoſe language they have uniformly adopted. Having from time immemorial lived under the government of the Tartars, they have

have long carried on trade, as well as manufactures, and practiſed the mechanical arts.

Towards the North of this little town, the riſing ground on which it is ſituated declines into an extenſive plain of a rocky ſoil, thinly covered with verdure, and producing on its lower part the buſhy Chriſt's thorn, or *Paliurus*. Since the government of the Khans, a ſmall herd of ſtags has been allowed to ramble at large in this valley; but there are at preſent only fourteen of theſe noble animals, of different ages, becauſe many were killed by the gun in the preceding winter. Hence the Jews, according to ancient cuſtom, are not ſuffered to erect any buildings on this plain, whither they have long wiſhed to extend their ſettlement. A reſervoir of water is provided here for thoſe ſtags, which are fed during the winter with hay, at the expence of Government; and, though not confined within artificial encloſures, they cannot eſcape over the rocky terrace, which forms the border of the whole promontory.

Many foundations of ſtone-buildings may be obſerved in this plain, which indicate that it was anciently inhabited; and there are ſeveral caverns in the ſteep rock towards the ſouth-weſtern dale, particularly in the vicinity of the Greek convent. According to an account given by Count Tott, and which appears to be confirmed by ſeveral inhabitants of Bakhtſhiſarai, large braſs or iron rings have formerly been ſuſpended from an inacceſſible part of this rocky precipice; but the truth of ſuch tradition I could not aſcertain from my own inſpection. The lateral ſurface of rocks in the whole valley of the Dſhuruk-ſu, like that in many other dales interſected by calcareous mountains, preſents every appearance of having once been waſhed by the waves of the ſea, and is in a manner corroded underneath.

In

In the eaſtern valley below Dſhufut-Kalé, and immediately under the ſource of the Dſhuruk-ſu, we noticed the foundation of a former caſtle of pleaſure, belonging to the Khan, and termed *Aſhlamà**. Contiguous to this chateau, there had been an excellent orchard furniſhed with grafted trees; but there is ſcarcely a veſtige now remaining either of this plantation or of the building.

The Jews, inhabiting this town, employ numerous aſſes, both for the purpoſe of riding, and for the conveyance of water and proviſions, which are generally carried by animals of burthen; becauſe, under the dominion of the Khans, they were not ſuffered to ride on horſeback; and, on the other hand, the Moſaic law forbids the rearing of mules.

Immediately below, at the diſtance of about two verſts from Bakhtſhiſarai, is the village of *Doſis*, ſituated on the banks of the Dſhuruk-ſu, which are in a manner encompaſſed with cabbage-gardens. Between this rivulet, and the heights riſing towards the South, are thoſe ancient ſepulchral vaults of the Khans, called by the Tartars, *Eſki Yourt*, or, the Old Habitation. A drawing of this remarkable ſpot, being taken from its ſouthern elevation, and communicated in the third plate, will afford a diſtinct view of its ſituation. The modern rage for deſolation has alſo extended itſelf to theſe reſpectable monuments of antiquity; and ſeveral of them now preſent a mere heap of ruins. The lateſt and moſt beautiful is vaulted in the

* Aſhlamà, ſignifies "the grafting of trees" and "ſcions": hence this pleaſure-caſtle received its name from the adjoining orchard.

form

form of a cupola; its doors and windows had uniformly been framed with cornices of white marble veined with grey, traces of which may ſtill be diſcovered; but unprincipled perſons have profaned this ſanctuary of the dead, broken out the ornaments, and baſely converted them into chimney-pieces. Between theſe edifices, we obſerved a number of funeral-pillars and tomb-ſtones, many of which are elegantly hewn of marble, and embelliſhed with foliage in *baſs-relief*. At preſent, the neighbouring Tartars are more attentive to theſe relics, and endeavour, as much as poſſible, to prevent their farther demolition. On comparing the conſtruction of theſe ſepulchral edifices with that I have formerly noticed at Madſhor, Tatartup, and Bolgary *, there can be no doubt reſpecting the origin of the latter, as well as the people by whom they have been erected.

At the diſtance of about ſix verſts from Bakhtſhiſarai, after travelling over level but elevated tracts, between ſeveral mountains compoſed of lime and marl, we reached the rivulet Katſha, flowing through an agreeable valley well-clothed with verdure, though unfavourable to health, on account of its humidity. Here is ſituated the village *Egis-Oba*, which has received its name from two hillocks appearing on the high road oppoſite the Katſha; and which are either deſigned for ſepulchres, or for marking the boundary. — Admiral Nicolai Semenovitſh Mordvinof is one of thoſe few noblemen who poſſeſs the talent of employing their fortunes to the advantage of their native country and their fellow-ſubjects. Having evinced this excellent diſpoſition on many occaſions, and in various ſituations, both in public ſervice and during his philoſophical retirement, he has likewiſe ſacri-

* The author, in this place, refers the reader to his former Travels (in German), Vol. I. p. 122. Plates VI. and VII.

ficed

ficed his private emolument to the benefit of the common weal, by eſtabliſhing in this village, firſt a manufactory of malleable iron, with a lock-ſmith's ſhop; next, a valuable tannery, under the ſuperintendance of a German maſter; and eſpecially an excellent nurſery of the beſt ſorts of indigenous and exotic fruit-trees. The ancient Tartar orchards planted near his village, which is now inhabited by a Ruſſian colony, as well as thoſe on the upper banks of the Katſha, are unequalled both for the abundance and excellent quality of their fruit. Hence this place has obtained great celebrity by the aromatic apples of of Sinap, which are annually conveyed by land-carriage to Moſco, and even to Peterſburgh In a declining direction, towards the ſea, along the banks of the Katſha, there are many orchards, and eſpecially vineyards; the latter of which yield an agreeably ſweetiſh and ſpirituous, though not very durable, wine. Only a ſmall proportion of this liquor is of a red hue; which, at the time of the vintage, is ſold at the price of about one ruble the eimer, conſiſting of ten Ruſſian quarts*; while that produced in the lower countries of the Alma is of an inferior kind, which is apt to become acid in the ſucceeding ſpring; ſo that, during the autumn, it may be purchaſed for 70 or 80 kopeeks *per* eimer. Although the mode of culture, and the ſpecies of grapes, on the banks both of the Alma and Katſha, are nearly the ſame, yet the ſituation of the vineyards in the vicinity of the latter is much warmer, and the land is more fertile. Here the vine is trained according to the manner practiſed in Hungary, not in ſingle ſtems, nor in eſpaliers, but in the manner of buſhes; ſo that each plant may, near the ſurface

* See the explanation of this meaſure, vol. I. p. 40.

of

of the ground, ſpeedily form a tuft or head, from which a few young ſhoots are annually raiſed, with a view to produce fruit in the ſucceeding year. This treatment, in a proper, humid ſoil, is more profitable than any other, while it is attended with uncommon advantage in the ſale of vineyards; becauſe each vine or buſh is, on ſuch occaſions, generally valued at one ruble. On the approach of winter, the vines in this country are, as high as the third knot or *eye*, covered with accumulated earth; which is removed and ſpread on the ground in the month of April, when the young ſhoots already begin to appear. Hence the vines are in bloſſom at a much earlier period, and the grapes attain to maturity nearly a whole month ſooner than thoſe growing in the ſouthern vallies, where the plants are never covered. The frequent ſtirring of the ſoil alſo remarkably contributes to its fertility. But it likewiſe occaſionally happens, that a late vernal froſt defeats the proſpect of an annual crop; and I have farther remarked, that in this climate the uncovered vines, even during the ſevere winters of 1798 and 1799, ſuſtained no injury.

The Katſha, though collecting its waters from numerous vallies and hollow glens, and uniting with ſeveral large brooks, is nevertheleſs a ſhallower rivulet than either the Belbek or Alma: its courſe is more weſterly than that of the latter, gliding along higher mountains, between the Babugan-Yaila and the lofty Mount Potamis, and at length diſcharging itſelf into the ſea, in a direction nearly parallel with the two ſtreams laſt mentioned. Heavy ſhowers, as well as the waters of melted ſnow, frequently ſwell the current of this rivulet to a conſiderable height; yet ſuch increaſe is of ſhort duration; and,

during dry ſummers, it preſents only a ſhallow brook. Its bed being broad and ſtony, it may at all ſeaſons be be croſſed by travellers with leſs danger than the Alma or the Belbek. Laſtly, the Katſha flows through a fine, open, and fertile country, which is in every direction interſperſed with Tartar villages, and embelliſhed with orchards.

The calcareous mountains between the Katſha and Belbek become gradually ſteeper, higher, and more abrupt, ſtanding alſo nearer to each other. A ſtill more lofty and almoſt uniform ridge of ſimilar mountains, however, appears beyond the laſt-mentioned river, proceeding from the weſtern ſea-coaſt towards the Eaſt. It is only in one place completely interſected by a dale, which extends in a ſouthern direction from the Belbek to Mankup. A very difficult road, leading over theſe mountains, was expreſsly contrived for the journey of her late Imperial Majeſty to Balaklava and Sevaſtopol; but which, on account of its ſteep ſouthern declivity, eſpecially beyond the ridge, renders the paſſage for carriages extremely hazardous. Beſides, there is a regular poſt-road on the right proceeding towards *Duvankoi*, or the Village of Prayer, (ſixteen verſts diſtant from Bakhtſhiſarai,) in the vicinity of which we reached the banks of the Belbek in a narrow ſteep, and unuſually warm dale. Here we deſcended to the left of the river as far as the extenſive plain which ultimately forms the ſea-ſhore. The lower part of the whole valley is laid out in gardens, among which there are vineyards, producing on their marly ſoil a ſweetiſh, agreeable wine, very ſimilar to that of Champagne; and which, on proper treatment, poſſeſſes a like effervescent, or ſparkling property. The moſt valuable ſorts have

have been planted near Duvankoi, by Colonel Totovitſh, a Servian, who lives in a ſtate of retirement. On both ſides of the valley, the mountains, conſiſting of marl and lime, are much corroded, being apparently undermined by ſprings and rills formed by rain water; while their baſe is, in every direction, covered with large rocky maſſes precipitated from the higher parts. Thus, a cloud, which burſt in the ſummer of 1796, near Duvankoi, occaſioned ſuch a flood, that numerous fragments of ſtone and rubbiſh were carried into the dale, and ſcattered over a conſiderable tract of garden ground, rendering the poſt-road for a long time utterly impaſſable.—The limeſtone is, in ſeveral of theſe places, much decayed and ſoftened from the corroſive effects of nitre, not unlike that appearing about the harbour of Sevaſtopol. In other parts it is ſolid, and contains a few evident petrifactions. Some of the ſeparated maſſes include numerous ſmall *helicites*.

The Belbek, Katſha, Alma, and Salgir, are reputed to be the principal rivers of the Crimean Peninſula; though, in other mountainous countries, they would be conſidered only as large brooks. The torrents, which, in conſequence of heavy ſhowers, are ſuddenly precipitated from the declivities of the higher vallies into theſe rivulets, have greatly enlarged and excavated their beds, ſo as ſometimes to give them, eſpecially in the autumnal and winter ſeaſons, for ſeveral hours or days, every appearance of powerful ſtreams; but, in the ſummer, they generally dwindle into inſignificant brooks. The ſource of the Belbek is in the lofty mountains of the great *Yaila*, or weſtern alp; and its current unites with many rivulets and ſprings riſing in the mountainous vallies of *Ouſenbakh*. In the

higher parts, its precipitate courſe forms ſmall caſcades iſſuing from vallies overgrown with wood. On the contrary, in the calcareous heights commencing at Albat, where it properly receives the name of Belbek, this rivulet flows between a continued chain of wild, rent, and pointed mountains compoſed of calcareous rocks, which repreſent whimſical landſcapes. In the more elevated regions, it is denominated *Kabarta*; and its banks were, according to tradition, formerly inhabited by Tſherkeſſians or Kabardines: hence the diſtrict between the upper Belbek and the Katſha, is to this day denominated *Tſherkeſs-tüſs*.

Between the country-ſeat of M. Alexiano, Captain of the Navy, and a mill erected by Vice-admiral Uſhakof, on an eſtate belonging to Count Tſherniſhef, we croſſed the Belbek by means of a bridge raiſed over a ſoft bed of that river. Near its mouth, the declining calcareous mountains terminate in abrupt capes ſomewhat projecting into the ſea, and preſenting at a diſtance yellow ferruginous matter. This appears to be a ſandy marl, interſperſed with ſmall pebbles which here protrude between the lime, as already has been ſtated. Thus the level clayey height, ſituated between the mouth of the Belbek and the harbour of Sevaſtopol, is interſperſed with ſmall pebbles, eſpecially with thoſe of a quartzoſe nature. This arrangement of foſſils is evident in ſeveral diſtricts between the Salgir and Karaſſu, which have derived their origin from a ſimilar decayed ſtratum of ſtony marl appearing on the ſurface.

On arriving at Severnaya-Koſſa, or the North Point, we deſcried the harbour of Sevaſtopol, where a company of merchants have lately erected large inns; becauſe it was intended

to

to build a kind of ſuburb, and to eſtabliſh a market, in order to promote the ſupply of proviſions and other commodities for the part of the town ſituated beyond the harbour, and which are carried thither from the villages along the banks of the Katſha and Belbek. The North Point, before alluded to, is a continuation of that ſtony mountain, which, according to accurate menſurations, riſes in a perpendicular line from ſixty to one hundred and thirty feet above the level of the ſea; and its greateſt elevation is towards the weſtern ſea-ſhore. From this place, the uſual conveyance to the town is in ferry-boats which croſs the harbour; but carriages and waggons are generally left behind, at the poſt-houſe.

The maritime town of *Sevaſtopol* is at preſent called *Akhtiar*, from a Tartar village formerly ſituated on the North ſide of the harbour, at the diſtance of three verſts from Inkerman. On account of its excellent port, the building of this place was commenced immediately after the occupation of the Crimea, and it has ſince very rapidly increaſed. The town is ſituated in the form of an amphitheatre towards the South of the harbour, along a neck of land which extends between the ſmall ſouthern bay, called *Youſhnaya*, and a ſtill ſmaller one, termed the Artillery-Bay, as is repreſented in the fourth plate. The iſthmus proceeds from a ſeries of calcareous beds, which riſe progreſſively as they recede from its extremity towards the ſhore; being ſomewhat more than thirty feet high near that point, but attaining the height of one hundred and ninety feet above the ſurface of the ſea, at the upper part of the town. This elevation, together with the oppoſite ſteep bank, likewiſe compoſed of lime-ſtone, incloſes the ſouthern bay, which is alſo

alſo called the Little Port. When viewed from above, it appears not unlike a cleft, ſo that the maſts of ſhips cannot be perceived at a ſhort diſtance from the coaſt. Sevaſtopol is built in parallel ſtreets on a declivity, and is divided into quarters by ſeveral tranſverſe ſtreets. On the extremity of the iſthmus, a building, termed *Dvoretz*, was erected in 1787, for the reception of the Empreſs; next to which are the admiralty-houſe, the arſenal, and the dwellings of naval officers. The higher parts are inhabited by citizens, and contain the market-place, as well as the recently built Greek church; beſide which, there is another for the divine ſervice of perſons belonging to the fleet. The barracks, and hoſpitals for ſailors, together with the magazine, are chiefly on the oppoſite ſide of the little harbour; while the barracks of the garriſon, being at ſome diſtance from the port, at its upper end, are built in the form of a ſuburb. Beyond the town, near the Artillery-Bay, are the barracks of this military corps, the cuſtom-houſe, a few other buildings, and, in the vicinity of the adjacent little bay, is the houſe for performing quarantine.—Laſtly, along the ſhore of the large harbour, we obſerved a few country-houſes, or farms, eſtabliſhed by military officers. The whole length of Akhtiar does not amount to one verſt and a half; and its breadth no where exceeds two hundred fathoms. This meaſurement, however, does not include the ſoldiers' barracks, which are erected at the diſtance of more than four hundred fathoms from the upper boundary of the town; nor thoſe in an oppoſite direction, appropriated to ſailors; nor the hoſpitals fronting the former, and ſituated on the ſhore of the ſmall haven.

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The harbour, being the moſt important part of this town, deſerves a particular deſcription; and Engliſh navigators generally compare it to that of Malta, or Mahon. Its principal bay, which was formerly called, in the Tartar language, *Kadi-Liman*, and at its upper part, *Avlita*, or Avlinta, extends in an almoſt direct South-eaſtern line into the country; and is, from the Severnaya Koſſa, to the efflux of the Brook Beeyouk-ouſehen into the extremity of the bay, at leaſt ſix verſts in length; being, at its mouth, 600 fathoms broad, but varying, as it ſpreads farther inward, from 800 to 350, and in ſome parts only to 300 fathoms. The central depth of this bay, computed from its mouth upwards, in no place exceeds ten or eleven fathoms; and, as far as the former village of Akhtiar, the ſite of which is now occupied by magazines for naval ſtores, it is no where leſs than nine fathoms deep; diminiſhing gradually towards both ſhores, to three fathoms. There are no rocks or cliffs in the whole harbour, excepting an inconſiderable bank before the Severnaya Koſſa, which muſt be avoided by veſſels entering the port; but which affords to ſailors a moſt productive fiſhery. The water in the upper part of this haven, towards Inkerman, becomes progreſſively more ſhallow; and, near the mouth of this rivulet, it is only from half to a quarter of a fathom deep; ſo that the long-boats run aground, and muſt be drawn on ſhore through the mire. The entrance into the harbour is defended by two ſtrong batteries, erected on the two oppoſite points of the coaſt. Beſides, there is another battery facing the town, and two ſimilar works are conſtructed on each neck of land connected with Sevaſtopol, together with a redoubt ſituated on higher

higher ground. One of theſe batteries is built in the form of a ſemi-circle, and ſerves, at the ſame time, to defend the entrance into the Artillery-Bay; which, otherwiſe, might expoſe the town to danger. Both the great and ſmall port are completely protected againſt all winds, by the calcareous beds which progreſſively riſe and extend into the country: occaſionally, however, weſtern hurricanes have been obſerved to penetrate through the mouth of the bay, and to drive the foremoſt ſhips from their anchors.

At a diſtance of about 750 fathoms from the mouth of this bay, the large ſoutherly port, appropriated for the reception of men of war, forms a collateral ſmall arm in a weſtern direction; and which was by the Tartars formerly called *Kartaly-Koſh*, or the Vulture-Bay; but is at preſent termed the Little Harbour, or *Youſhnaya-Bukhta*. Its water extends upwards of two verſts and a half into the high country, though only two hundred fathoms wide at the mouth. Immediately towards the South, it forms a ſmall narrow creek, ſcarcely three hundred fathoms in length, varying in breadth and depth from ſix to nine fathoms, but gradually diminiſhing in both reſpects towards its ſouthern extremity; the whole being ſurrounded with mariners' dwellings. When the fleet is diſmantled, this creek affords perfect ſecurity; but, when it is again fitted out, the ſhips of war caſt their anchors in the large harbour, where they are then ſtationed in a line. The ſmall Artillery-Bay, which is only three hundred fathoms in length, has obtained this appellation from the barracks erected on its ſhore, for the accommodation of that military corps. It is ſomewhat nearer to the mouth of the harbour, being ſeparated from the former ſmall haven

haven by an iſthmus about two or three hundred broad, and on which the town is ſituated.

On the ſame ſide, at the diſtance of 900 fathoms from the little harbour, there is a ſtill ſmaller, narrow creek, two hundred and fifty fathoms in length, and which was formerly called *Avlita*. Here ſhips of war may be conveniently laid on their ſide, in order to be calked and refitted. As the external timber of ſhips is, in two years at the fartheſt, completely corroded by ſea-worms, ſuch repairs frequently become neceſſary; becauſe theſe vermin are very numerous along the whole coaſt of the Crimean Peninſula, eſpecially from this place to Kaffa and Kertſh, and even in the harbour of Akhtiar. No remedy has hitherto been found more effectual for the preſervation of ſhips than that of placing them, at leaſt every ſecond year, on their ſides in this ſmall bay, and of charring them with tar and juniper-buſhes; an operation which is attended with great danger of ſetting them on fire, while it materially injures the veſſels, by turning them from the keel. In the ſea of Azof, where the water is leſs ſaline, and in the Liman near Otſhakof, theſe worms generally periſh; nay, it has been remarked, that veſſels perforated by them, draw more water in the ſituations laſt mentioned, but that they become leſs leaky in the Black Sea. I had now, in company with my friend, Vice-Admiral Prieſtman, an opportunity of witneſſing this hazardous method of charring ſhips. I obſerved the marine productions adhering to the bottoms of veſſels, and then viſited the banks of the ſmall bay, into the extremity of which flows an inconſiderable brook, that irrigates a ſmall tract of low country overgrown with herbs; but the humidity of which is ſaid to be detrimental to

the health of the ſailors employed in its vicinity. Among the moſt remarkable inhabitants of the ocean, which, however, preſented no great variety, were the *Alcyonium Schloſſeri**, that here diſplayed various ſhades, olive-green, yellowiſh, and orange, marked with white or yellowiſh ſtars; farther, a gelatinous *Aſcidia*, ſome ſea-tulips, two ſpecies of *Sertularia*, the *Eſchara lapidea*, the *Tubularia ovifera* †, which I have formerly deſcribed from the Baltic Sea, and the tree-oyſter. The ſhore of the bay throughout conſiſts of beds of lime in a ſtate of efflorescence from the action of nitre, depoſiting conſiderable quantities of a ſaline calcareous powder, and appearing in a manner corroded. In other parts of the valley bordering on this bay, we diſcovered ſome neglected vines and wild hops, the traces of former cultivation.

The air of Sevaſtopol is ſalubrious, on account of its dry, expoſed ſituation, and the vicinity of the ſea. It is not only tempered by winds during the ſummer, but is alſo milder in the winter than in many other parts of the Crimea, in conſequence of the ſhelter afforded by the mountains ſituated towards the North and Eaſt. In the former ſeaſon, the greateſt heat never exceeds 26½ degrees of Reaumur's, or 91 degrees of Fahrenheit's thermometer. Land and ſea breezes blow alternately in the evenings and mornings, in the direction of this port; thus refreſhing the atmoſphere, and at the ſame time facilitating the entrance and departure of ſhips, while the North-weſt and North-eaſt winds prevail chiefly at ſea, without diſturbing the harbour.

* This baſtard ſponge has been admirably deſcribed by Gärtner.—See alſo *Pallas Spicilegia Zoologica*, Faſc. X. p. 37. *Tab.* IV. fig. 1—5. *Botryllus ſtellatus*.

† *Spicileg. Zoolog.* in the ſame *Faſc.* Tab. IV. fig. 9.

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The ſupply of proviſions from the adjacent villages is very deficient, on account of the apprehenſions which the Tartars entertain of the ſailors; ſo that every article is ſold at an extravagant price. At preſent, Ruſſian dealers purchaſe cattle on the ſteppe, and drive them to market; but formerly butcher's meat was ſold cheaper by mariners, who then enjoyed more liberty, and often reſorted to illicit methods of procuring it. Their common ſlaughtering places were in thickets, on the mountains of Inkerman; whence the meat was conveniently ſent to town. This illegal ſpot was generally known from the large brown vultures hovering around it in circular flights. Rye-meal and fiſh are the only articles that are here more plentiful, and ſold at lower prices than in other parts of the Crimea: the former, on account of the numerous ſeamen, as well as ſoldiers, ſelling their ſuperfluous allowance; and the latter, becauſe the ſailors of almoſt every man-of-war obtain permiſſion from their commander to employ the long boat with oars, for the purpoſe of taking ſea-fiſh, and ſelling them in the market. Among theſe, particularly the *Mugil Cephalus*, the ſmaller mackarel, or *Pelamys*; then a diminutive ſpecies of the red mullet, or *Mullus barbatus*, enter the harbour in conſiderable ſhoals. A few years ſince it was likewiſe diſcovered, that this port is frequented by oyſters. The œconomy prevailing in the farms eſtabliſhed by officers, who encourage the rearing of poultry and hogs, has alſo contributed to furniſh theſe two articles of conſumption. The ſmall quantities of hay made in a few low grounds, and carried thither by the Tartars from the mountains, are ſo inadequate to the ſupport of the horſes and cows kept by the inhabitants of Akhtiar, that frequently

during long winters, the pood, or 40 lbs. weight, is ſold at 30 kopecks, and ſometimes even at one ruble. Timber and fire-wood are alike expenſive; and, if a large proportion of theſe articles were not obtained by clandeſtine means, they would frequently be in total want of both. Even the Juniper-buſh, which formerly covered many parts of the Cherſoneſus, is now extirpated, and muſt be brought from a conſiderable diſtance above Inkerman, for the purpoſe of charring ſhips' bottoms. The Chriſt's-thorn is the only plant that has hitherto been ſpared. On the other hand, there is abundance of ſtone in this vicinity for building; and, ſince the hewn ſquare ſtones from the ancient fortreſs Korſſun have been exhauſted by employing them in many new edifices at Akhtiar, maſons have commenced to ſaw the ſoft calcareous rock of Inkerman into regular ſquares, and to tranſport them acroſs the harbour to Sevaſtopol. The batteries of this port are at preſent in an advanced ſtate of being erected with the ſame material.

Foreign merchandize and wines, eſpecially thoſe from Greece and Turkey, as well as fruit, may be eaſily procured from ſuch ſhips as are obliged either to perform quarantine here, or to reſort thither, in order to be refitted. Notwithſtanding ſuch advantages, and every degree of encouragement given to the exportation trade, Akhtiar is in this reſpect a hopeleſs port; becauſe it is not properly ſupplied with proviſions and other commodities. Since the new regulations have taken place, not only the ſmuggling of iron, cordage, and other naval ſtores belonging to the Crown has been ſuppreſſed, but likewiſe the building of ſmall craft has been rendered extremely difficult. On account of its excellent

ſituation

ſituation, however, and the ſecurity afforded by this port, many veſſels, eſpecially during the vernal ſeaſon, enter the Quarantine-Bay, partly with a deſign to remain there till the appointed time is expired, partly with a view to diſpoſe of a few articles of merchandize; or, laſtly, in order to be repaired. As the port of Balaklava has been ſhut againſt foreign ſhips, ſuch an excluſion of merchantmen from that of Akhtiar might often prove a dangerous meaſure to the navigation of the Black Sea.

A great inconvenience to this town is the want of good, wholeſome water. Although the more wealthy inhabitants may procure this commodity from a well four fathoms deep, and five verſts diſtant from the town, on the road leading to Balaklava; yet the common people, who cannot afford ſuch expences, are compelled to make uſe of the brackiſh water yielded by a few ſprings on the ſhore; which circumſtance, together with the great conſumption of ſalt proviſions, probably contributes to produce the ſcorbutic diſeaſes that prevail here during the winter ſeaſon. The only good ſpring in this ſea-port town is that ſituated at the entrance of the ſmall harbour near the barracks occupied by the garriſon, but which is excluſively appropriated to the ſupply of the land-troops. It would, however, be highly expedient to pay ſome regard to the health of ſo many thouſands, by forming a proper aque-duct. The inhabitants of ancient Cherſoneſus, doubtleſs, enjoyed the advantage of ſuch water-works; otherwiſe the numerous people that, from the veſtiges ſtill remaining, muſt have exiſted in this country, could not have been preſerved from the effects of thirſt. Hence the former aqueduct, traces of which

which have already been diſcovered, ſhould be diligently ſearched for, and reſtored; becauſe the ſpring, which a few years ſince was attempted to be conducted hither from a place called the Eating-houſe, or Cook-ſhop, at the diſtance of ſix or ſeven verſts, would ſcarcely furniſh ſufficient water for this populous town.

Laſtly, there is an abuſe practiſed at Akhtiar, which requires an immediate remedy; though the removal of it might be attended with greater difficulty, than that of the inconvenience before ſtated. The petty dealers in this place, being moſtly Greeks, are not contented with moderate profits, but greatly oppreſs the ſubaltern naval officers and ſeamen; not only by the arbitrary and exorbitant rates of their goods, but alſo by illicit modes of diſcounting bank-notes and Turkiſh ſilver currency. Inſtances have ſometimes occurred, in which ſailors have been paid in paper-money that bore a diſcount of from 10 to 12 *per cent.* when they were obliged to exchange it for copper coin. Farther, Turkiſh currency, that formerly abounded in the Crimea, was by the ſame uſurers reduced to 15 *per cent.* lower than its uſual value; and, beſides, the prices of all merchandize were advanced. This unprincipled conduct, which ſurpaſſes even that of Jews, has often been carried to ſuch extent, that the mariners have nearly been induced to commit riots and other exceſſes.

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The environs of Sevaſtopol, or Akhtiar, may be conſidered as truly claſſic ground; on almoſt every ſtep of which the inquirer meets with Greek antiquities, that muſt have been ſtill more numerous, before the town of Akhtiar had riſen from the ruins of the ancient Cherſoneſus. I ſhall here collectively relate all the obſervations made at different periods, and during various excurſions or journies in this country; but, with reſpect to its ancient ſtate, I ſhall be guided by STRABO, who is ſcrupulouſly accurate in his VIIth book, where he deſcribes the banks of the Black Sea, and thoſe of the Sea of Azof: it will, however, be uſeful to premiſe a phyſical and geographical account of the South-weſtern quarter of the Crimean peninſula, ſo that I may diſtinctly point out the remains of antiquity diſcoverable on its ſoil.

The

The whole angle of the country, which is in a manner interſected on one ſide by the harbour of Akhtiar, and on the other by that of Balaklava, was formerly called the Heracleotic Cherſoneſus, becauſe it was peopled by coloniſts who emigrated from the city of Heracleum in *Aſia Minor*; and, as Strabo expreſſes himſelf, it actually reſembles an extenſive promontory* that forms part of the great peninſula. The preſent calcareous ſtratifications riſe gradually as far as the banks of the Belbek, more abruptly towards the South of this river, and at length terminate precipitately where they unite with the more ancient mountains; thus forming the whole ſloping plain of the Heracleotic Cherſoneſus, that is occaſionally diverſified with hills, and has a yellow-reddiſh clayey ſoil, in many parts mixed with gravel, the ſurface of which is more or leſs covered with a dry turf; though, in the higher parts, it often preſents a naked rock. This elevated tract aſſumes a hilly form only towards Inkerman, where the port of Akhtiar commences, from Balaklava to the monaſtery of St. George. In its farther progreſs, it forms indeed thoſe lofty and ſteep rocks contiguous to the ſea-ſhore, which attain their greateſt height between the corner of land that has received its name from the monaſtery before mentioned, and the moſt diſtant point, called Fanary; but it again declines toward the northern ſhore, and in its

* *In littore, præter quod navigatur, meridiem verſus expoſitum eſt magnum promontorium, continenter porrectum, portio totius peninſulæ: inque eo ſita eſt urbs Heracleotarum, colonia eorum qui ſunt in Ponto, nomine Cherroneſus.* *Strabo e verſione* Xylandri. And in the progreſs of this narrative:—*Is* (*portus Symbolon*, namely the harbour of Balaklava) *cum alio portu, Ctenuntem appellant*, (which muſt doubtleſs mean the port of Akhtiar) *iſthmum conſtituit, ſtadiorum quadraginta; is eſt iſthmus, qui parvam peninſulam claudit, quam magnam peninſulæ partem eſſe diximus, et in ſe habere cognominem ſibi urbem Cherroneſum.*

whole

whole extent there are only inconſiderable flat elevations interſected by hollows; all of which contract towards the bays on that coaſt, as well as towards the large and ſmall harbours of Akhtiar. The length of this ſingular region, from the port of Balaklava to Point Fanary, does not exceed eighteen verſts; and its breadth, between the port of Akhtiar and the ſouthern coaſt, is computed to be ſomewhat more than ten verſts.

There are, properly ſpeaking, four bays* between the large creek or harbour of Akhtiar and Point Fanary; each of which might ſerve as a ſea-port. The ſmalleſt of theſe bays, and at the ſame time the neareſt to the harbour of Akhtiar, is that, on the weſtern ſhore of which is ſituated the town of *Kherſon*, *Korſoon*, or Cherſoneſus; a place ſtill called in the Tartar language *Tſhortſhoon*, but by the Ruſſians *Karantinaya Bukhta*, on account of the quarantine there eſtabliſhed. Though very ſmall, crooked, and not completely one verſt in length, this creek forms a very ſafe port for veſſels lying at anchor. Buildings have only within theſe few years been erected for the purpoſe of attending to the quarantine; as, previouſly to that time, the Crown-officers were ſtationed in tents, and this duty of newly-arrived ſhips was performed in ſome receſſes or caverns of the calcareous rocks near ſhore. The ſecond of thoſe bays is conſiderably larger, extends more than two verſts into the country, and is at preſent termed *Streletzkaya*. Its depth at the entrance is about ten or twelve fathoms; but it gradually decreaſes to ſix, and is in ſome parts only two fathoms. The third is called

* *Inter urbem* (*Cherroneſum*), ſays STRABO, *et promontorium* (*Parthenium*), *portus ſunt tres*. In this account, he probably does not include the *Round Bay*, which is not ſufficiently convenient to ſerve as a port.

Kroog-Laya Bukhta, or the Round Bay: it is not a full verſt in length and breadth; its depth no where exceeds ſix fathoms; and it has in its centre a ſmall iſland, the anchorage around which is ſhallow. There are two ſalt-lakes on its ſhore: one of theſe is ſituated near the obtuſe angle of its extremity, being ſeparated from the creek only by a narrow dike; and the other is on the weſtern ſide of the bay, from which it is divided by an iſthmus ſomewhat broader than the preceding. Its diſtance from the Streletzkaya-Bukhta is rather leſs, but from the following *Kaſatzkaya-Bukhta*, a little more than a verſt; and the necks of land between both are ſlightly elevated. The third bay is the Kaſatzkaya-Bukhta. It forms, towards the ſea, together with the fourth bay, which is uſually termed *Fanary*, one common ſheet of water, and is ſeparated from the latter by an iſthmus about 350 fathoms broad. Its greateſt depth is from eight to ten fathoms; though it gradually decreaſes to five, four, three, and even two fathoms: in the interior parts, it branches out into two points, of which that towards the Eaſt nearly deſcribes a right angle. The laſt bay, Fanary, likewiſe forms two creeks of equal depth, but unequal length; the weſtern one of which proceeds into the land in a South-weſtern direction, and is much ſhorter; its bed being of a ſnowy whiteneſs. A flat and narrow iſthmus divides its extremity from a ſalt-lake, which formerly doubtleſs conſtituted part of the creek itſelf, till the violence of the waves in a northern tempeſt had accumulated this natural bank. The ſaline lake ſhews the ſame white bottom as the adjacent bay; and appears, during the ſummer, when I inſpected it, to contain leſs water than the latter; though it depoſited ſalt at that ſeaſon,

ſeaſon, and emitted an offenſive ſmell. It is about 130 fathoms in length; the low dam that ſeparates it being 60 fathoms long, and 23 broad; of which breadth, fourteen fathoms exhibit a flat white ſtrand, that appears, at other ſeaſons, to have been inundated by the water of the lake. A very ſimilar ſalt-pond, ſixty fathoms in length, borders on the North-weſtern level ſhore of that neck of land which preſents the form of a ſpade, terminating the boundary of the Crimea. This likewiſe has apparently ariſen from a ſmall creek that was probably confined by a bank* nearly ſixty fathoms in length, and twenty in breadth; being compoſed of fragments of ſtone and mire drifted together by the fury of the waves, and reſembling in its conſtituent parts the ſtrand, which is in a manner defended by a ſmall natural dike: thus it is at preſent diſunited from the open ſea, and frequently depoſits ſalt during hot ſummers. Although the ſaline matter is of a very inferior quality, being too ſtrongly impregnated with Epſom or Bitter Salt, it is nevertheleſs ſpeedily carried away and conſumed by the Tartars inhabiting the adjacent villages on the mountains; who, by way of tribute for ſuch permiſſion, deliver every tenth load at Akhtiar to the proprietor of this and other ſaline lakes ſituated near the Round Bay. Of ſimilar origin appear to be thoſe two ſalt-pits which are nearly in a dry ſtate, and only 60 fathoms diſtant from the light-houſe erected on this point of land. They are likewiſe ſeparated from the ſea only

* Between the ſtones of this bank, during the month of Auguſt, I frequently met with the *Crithmum maritimum*, a remarkable ſpicy plant, which occurs but rarely on the ſouthern coaſt of the Crimea.

by the ſtony mound of the level ſhore, which is peculiar to this part of the continent.

It deſerves to be remarked here, as a natural curioſity occurring on this neck of land, that its weſtern, ſteep, rocky ſhore, which in many places (eſpecially at a diſtance of one verſt and a half from the point downwards) riſes from thirty to forty feet, and ſtill higher, is not compoſed of the more recent calcareous ſtrata ſo often mentioned, nor of the chalky marl forming the mountains of Inkerman; but that it conſiſts ſimply of a porous or warty calcareous tophus in a concrete ſtate; and which ſome fanciful travellers have ſuppoſed to be a real pumice-ſtone. It is, indeed, difficult to explain, how ſuch a maſſy and extenſive bed of ſtalactite could have originated in a country which exhibits no traces of water, eſſentially requiſite to its formation. This ſingular ſtratum commences only at the ſpot where the country of the Cherſoneſus perceptibly declines toward the point of Fanary-Bay, and proceeds without interruption upwards of two verſts and a half along the ſhore, till the land is covered by the ſea; the depth of which varies from one to three fathoms around point Fanary, while the coaſt has no conſiderable elevation.

The whole Heracleotic Cherſoneſus is in a manner covered with the remains of antiquity. On travelling along the ſouthern ſea-coaſt, however, till we arrived at the monaſtery of St. George, there was no trace of ancient buildings diſcoverable, nor any other veſtige of former habitations; excepting a ſtraight line of ruins, which may be drawn from the harbour of Balaklava due North towards Inkerman. In the vicinity of this line, a long ridge extends acroſs the country in the direction

direction before ſtated. There are very few fragments of a wall, and of ſome turrets, ſtill perceptible; the latter of which had been partly of a round, and partly of a ſquare form; but moſt of the ſtones have, on account of their apparently hewn ſhape, been carried off to Balaklava and the neighbouring village of Kadikoi, for the purpoſe of erecting buildings. Theſe traces probably indicate the ſite of that ancient wall, which, according to Strabo *, formerly encloſed the Cherſoneſus between the ports of Balaklava and Akhtiar, a diſtance of forty ſtadia. From the commencement of this line, the whole peninſula abounds with remains of old walls, which appear to have been raiſed with the view of encloſing fields, or for ſerving as foundations of very ancient edifices. From ſuch veſtiges of antiquity we ſee the original mode of building that prevailed among the Greeks, who combined prodigious ſquare ſtones fitted to each other, by means of beams inſerted through particular holes made between the former; and the interſtices were probably filled up with clay or mortar beaten into them, but which in proceſs of time has been gradually waſhed away by rain. On taking a view from the height already mentioned, which ſtill exhibits traces of a wall, we could diſtinctly ſee the harbours of Balaklava and Akhtiar, together with the adjacent calcareous mountains. The diſtance between theſe two ports can ſcarcely be greater than that ſtated by Strabo,

* *Cùm autem hi (Scythæ) et murum, quo intercluſus erat iſthmus, ad Ctenuntem aggrederentur, ingeſtiſque calamis foſſam implerent; regii, quantum ab his interdiu, quaſi ponte facto ſtratum fuerat, noctu incenderunt.*—STRABO, Lib. VII. There are, however, no traces diſcoverable of a former ditch; unleſs the hiſtorian alludes in this paſſage to a particular fort, then exiſting contiguouſly to the wall.

who

who computes it at forty ſtadia, or eight Ruſſian verſts; which, however, appears to have been greatly exaggerated in the lateſt maps.

I ſhall now proceed to deſcribe ſome of the moſt remarkable buildings, that are ſcattered on the narrow part of this peninſula, where it is confined by the two harbours before alluded to; and which I had an opportunity of examining.

Two of the principal edifices occur contiguouſly to the ſouthern ſhore. At a ſhort diſtance from the monaſtery of St. George (of which I ſhall preſently give a more particular account), and cloſe to the lofty and rugged cape called *Aya-Burun**, or the Sacred Promontory, there is one corner of the ſhore, on its weſtern ſide, interſected by two deep but ſhort gulfs, with rocks projecting over the ſea; one of which is peculiarly terrific, and ſeparates this angular point from the Aya-Burun. Its ſuperficies, which is little more than fifteen fathoms long, and eleven in breadth, is incloſed by a wall ſeven Paris feet thick, which at firſt proceeds in a direct line South-ſouth-eaſt to the length of about ſeven fathoms; then forms an obtuſe angle towards the South-eaſt; and, after advancing four fathoms, it reaches the large abyſs where a tower of four arſhines ſquare appears to have formerly ſtood. On the weſtern ſide, we could diſcover only the foundation of a ſloping wall, five fathoms in length from the right corner of the large wall towards the little gulf; but of the other erections there remain

* The name of this promontory, which conſiſts of a kind of marble, is compounded of the new Greek adjective *Aja*, and the Turkiſh word *Burun*, denoting a cape. The whole ſtony maſs terminates abruptly within the ſea, and borders towards the Weſt on the valley in which the village of *Karani* is ſituated, and at preſent inhabited by Greeks.

only

only a few of the lowermoſt large ſquare ſtones in their places. In the inner corner formed by the northern and eaſtern walls, we met with another edifice thirteen arſhines ſquare, the lower ſtones of which, on the two ſides facing the walls, are ſtill viſible; but of the two others we could trace only the foundation. On the ſide due North, broad ſtones are internally placed along the wall, in the form of ſteps. No other ruins are evident in the inner ſpace; and ſeveral large maſſes of the impending rocks have lately been precipitated into the ſmaller abyſs. It is, however, difficult to conjecture the deſign of this building; which, from the want of water, appears to have been unfit for a fortified place. The name of Sacred Promontory, which it ſtill retains, its contiguity to that cape, and its diſtance from the walls ſurrounding the city of Cherſoneſus, all tend to warrant the preſumption, that this ſpot may have been the *Fanum Dæmonis Virginis;* and that Aya-Burun was the *Promontorium Parthenium* mentioned by Strabo*; though others have rather ſuppoſed its ſituation to have been near the rugged corner denominated St. George's Rock, in a more weſtern direction than the preſent monaſtery. There is, however, no veſtige of buildings, nor are any traces of human workmanſhip diſcoverable, on ſurveying the whole extent between this monaſtery and the corner, in front of which, the blackiſh cliff, compoſed of a brown ſchiſtus, projects into the ſea; and ſuch is alſo the caſe farther along the coaſt. But, in following the high ſhore that now extends to the North-weſt, a ſteep and

* *In ea urbe (Cherroneſo) eſt templum dæmonis virginis, a qua nomen habet etiam promontorium, quod ante urbem eſt ad C. ſtadia, et Parthenium dicitur, fanum ejus genii habens ac ſimulacrum.*—Strabo, *l. c.*

pointed

pointed craggy rock preſents itſelf, which conſiſts of a dark brown ſchiſtus, and proceeds directly into the ſea. Towards the continent, this cliff is covered with white calcareous layers; which, together with the laminated foſſil, decline towards the North-weſt; the whole being perforated by the waves, not unlike a gateway, ſo that a boat may paſs through it with ſafety. Behind ſuch thoroughfare, the ſchiſtus becomes progreſſively lower, and is at length loſt in the ſea. On the ſhore formed by more recent ſtratifications of lime-ſtone, exactly above the divided rock before mentioned, there is an evident foundation of another and more extenſive ſtructure; which, in conjunction with the projecting rock, might almoſt preferably be applied to the paſſage quoted from Strabo. This building conſiſts of two ſquares contiguous to the precipice of the ſhore, forming an irregular front; and its walls are raiſed in a direction nearly correſponding to the four points of the compaſs. The more northern erection is an equilateral ſquare of thirty-three feet, ſituated on an elevated baſe, in the form of a hill; it appears to have had only one entrance at the ſouth-weſtern-corner towards the ſea. Independently of its foundation, this edifice is on all ſides provided with a row of prodigiouſly large oblong ſtones, hewn by a rude hand. In the middle of the ſquare, though ſomewhat nearer to the northern wall, there lay a cubical ſtone, the upper ſurface of which was on a level with the ſoil. I cauſed it to be raiſed, and found the earth underneath remarkably looſe. Around it, I obſerved ſeveral flat ſtones of a moderate ſize placed in the ground of an open ſquare, on the northern ſide; and which had probably ſerved for ſteps, while an altar, or the

ſtatue

ſtatue of an idol, was perhaps ſupported by the central ſtone. The ſouthern ſquare, being ſomewhat nearer to the ſea, and contiguous to the preceding, is an oblong ſtructure, extending towards eaſt and weſt forty-ſeven feet, but on the two other ſides only thirty-five; and its inner ſpace, on comparing it with the elevation of the ſquare juſt deſcribed, is perceptibly excavated. It appears to have had a door towards the ſea at the South-eaſtern, and another at the North-weſtern corner; the whole fabric conſiſting likewiſe of oblong large quadrangular ſtones, which in the upper row are ſometimes placed tranſverſely, though in general arranged lengthwiſe, according to the direction of the walls. The method of joining them is ſimilar to that practiſed in all buildings of very ancient date: they are rudely and looſely conſtructed, without any trace of either mortar or clay; though ſmall fragments of ſtone occaſionally occur, and have evidently ſerved to fill up the interſtices between the hewn ſquares. The ſtone uſed for this purpoſe is the common calcareous rock, which ſeparates in large maſſes from the horizontal ſtrata, and is mixed with oolites and large pieces of ſhells. As many other edifices of a like rude workmanſhip will be mentioned in the ſequel, I have been induced to give a minute account of this ancient mode of building.—Near the wall of the oblong ſquare facing the ſea, flat hewn ſtones are laid in a ſtraight line, and they proceed to ſome diſtance along the next ſquare, being apparently deſigned for a path. There is another foundation of ſtone-work, which commences at about nineteen feet from the South-eaſtern corner of the ſmall ſquare, extending in a direct line towards the South-eaſt, then deſcribing nearly a right angle, and again

turning due South-weſt; ſo that it cloſely unites with the South-eaſtern angle of the more oblong ſquare, and thus in a manner forms a front-court. On deſcending the high ſhore, we obſerved here the firſt veſtiges of field-encloſures, which are uniformly compoſed of fragments of ſtone. They occur between this place and Akhtiar, nay, almoſt over the whole Cherſoneſus; extending about ten verſts in length and breadth. As theſe remains of antiquity appear in ſeveral places, not unlike regular ſtreets, they have ſometimes been conſidered as ruins of walls that formerly ſerved to encloſe court-yards.

About one hundred and fifty fathoms from the high ſhore of this remarkable ſpot, which has generally been unnoticed by travellers, we met on its borders with another foundation on a ſingular plan, and the deſtination of which it is ſtill more difficult to conjecture. There are two parallel rows compoſed of large free-ſtone, extending South-eaſt and North-weſt; one of which is eleven, and the other thirteen arſhines in length. On the upper ſurface of each ſtone, that forms the South-eaſtern extremity of theſe two rows, there is a round hole, which has apparently ſerved for revolving thick cylinders, or hinges of gates. Between the walls we noticed two very large oblong quadrangular ſtones in a detached ſtate. At the North-weſtern extremity, and from the right corner of the more extended row, which is ſomewhat nearer to the ſea, another ſeries of large ſquare ſtones proceeds to the diſtance of ten arſhines. Contiguous to the latter, a circular hole has been made in the ſoil, and in the layers of ſtone, through which a perſon may eaſily deſcend; though it ſhortly changes into a ſpacious cavern, whence there is a ſubterraneous paſſage from ten to twelve

twelve paces in length, leading eaſtward to another open grotto near the precipice of the ſea-coaſt.

At a diſtance of ſcarcely one hundred and thirty-three fathoms thence, and not quite bordering on the ſteep terrace of the ſhore, we took notice of a quadrilateral ſtructure compoſed of bulky free-ſtone, and meaſuring thirty-ſeven feet by thirty-two; of which, beſide the foundation walls, three rows of ſtones piled one upon another are ſtill remaining. Two diſtinct foundations of ſtone-work, forming an angle of unequal ſides, lie parallel to the South-weſtern wall of the ſquare, at the diſtance of from five to eight fathoms, but no farther continuation of them can be traced. In the vicinity of the North-weſtern wall of the ſquare above alluded to, we perceived two pits encompaſſed with ſtone-work, and reſembling tombs that had been opened.

About ſixty-ſeven fathoms from this place, the ſhore forms a precipitate, rocky angle, the lofty top of which is rugged. We travelled hither along a low tract of ground, which conducted us to a ſteep buſhy acclivity, where we could not perceive the craggy precipice till we arrived at its edge. The extreme point preſents on its ſurface a few calcareous flats of this horizontal ſtratum, whence the proſpect over the ſea is truly terrific. On the northern declivity of this eminence, the ſurface of which uniformly exhibits a naked rock, we perceived in ſome places various circular layers of ſtone-work, which I ſuppoſe to be tombs of the ancient inhabitants of the Cherſoneſus. They lie beſide one another without any apparent order, are from four to five arſhines in diameter, and on a level with the ground. Similar relics are diſcoverable in other

parts of the Crimea, and I obſerved many in a particular ſpot, ſome of which were oval, occaſionally an oval and a circular one, or even two of a round form near each other. The rude manner in which the circumference of ſuch ſtone-work is uſually arranged, bears evident marks of their remote antiquity.

On purſuing our journey along the rugged ſouthern ſhore, which henceforth gradually declines, we obſerved in the interior parts on the right conſiderable tracts of ground covered with ſquare encloſures in a ruinous ſtate, and which appear to have been conſtructed ſimply of ſtones without mortar, a mode of building that is ſtill practiſed in the Crimea. We were obliged to croſs ſeveral foundations of ſuch walls, eſpecially on approaching Fanary Bay. After deſcending from this eminence, we followed the road which leads to a farm eſtabliſhed by the late Vice Admiral Alexiano, and ſituated at the diſtance of ten verſts from the monaſtery of St. George, in the ſaline low country bordering on the bay above mentioned.

One of the moſt remarkable regions, however, of the whole Cherſoneſus, with regard to its antiquities, preſents itſelf on proceeding from the angle of this bay, and the farm of M. Alexiano, to the extreme point of land termed Fanary*, which extends to the length of two verſts and a half, and terminates in a plain ſurface. The land towards the higher ſouthern coaſt is ſo deeply interſected by two creeks proceeding from the main bay, that this little peninſula is, between their extremities, ſcarcely more than three hundred fathoms in breadth. It expands, however, from the latter ſpot,

* This iſthmus of the Crimea has in ſome French maps been improperly denominated *Cap Famar*.

ſo

ſo as to become a verſt and a half broad at the ſhore of the bay. The whole ſoil of this diminutive ſemi-iſland has apparently been occupied by a populous city, and indicates, in my opinion, the ancient Cherroneſus* of Strabo.

The firſt object that attracts the attention of a traveller, on entering this little peninſula, is a ſmall iſle, which is in a manner connected with the continent by a marſhy neck; being ſituated at the extremity of the longer creek iſſuing from the bay, and oppoſite to the farm of Alexiano. I was therefore induced to communicate, in the ſecond vignette, the plan of this fortification, that conſiſted of bulky free-ſtones; of which, however, a few of the lowermoſt only remain in their places; ſo that I am prevented from giving the exact dimenſions. Whether this fortified poſt was built for protecting the ancient city of Cherroneſus, or whether it was one of the forts, which the Scythian leader, SCYLURUS, erected againſt the Generals of Mithridates†, I ſhall not attempt to decide. The iſle marked *A*, has a dry ſoil, elevated above the ſea; but the neck *B*, by which it joins the land, is low, ſwampy, and partly

* The ſituation of this ancient city cannot be more accurately determined than in the words of Strabo. "*Inter urbem* (namely the modern *Cherroneſus*) *et promontorium* (*Parthenium*) *portus ſunt tres; ſequitur vetuſta Cherſoneſus, nunc diruta, et poſt hanc portus anguſto introitu;—Symbolon dicitur.*" From this paſſage it is evident that the old city muſt have ſtood between the bays of Fanary and Balaklava; the harbour of which was *Symbolon*, a name ſince changed by the Genoeſe into *Cembalo*. It is likewiſe at this diſtance, we ought to ſearch for the *Promontorium Parthenium*; as the coaſt in other reſpects has an uniform appearance.

† *Præter enarrata Cherroneſi loca, alia etiam caſtella ſunt, quæ Scylurus et filii ejus extruxerant, iiſque adverſus Mithridatis legatos belli arcibus uſi ſunt: Pallakium, Chavum, Neapolis; fuit et Eupatorium a Diophanto conditum.*—STRABO, *loc. cit.* The origin of the name "Balaklava" ſhould, I conceive, be traced in the expreſſion *Pallakium*, rather than in the Tartar word *Balyk*, which ſignifies *Fiſh*.

inundated,

inundated, when the wind blows into the bay. It appears, nevertheleſs, that this dam, which perhaps is the work of art, has been encloſed and fortified by walls, one of which is ſtill evident; being, on the ſide next the continent, attached to the ſquare tower *C*. The ſtrongeſt fortifications, however, are in the iſle itſelf, which is not only protected by ſtrong walls raiſed of hewn ſtones, but alſo by towers, the foundations of which are ſtill diſcernible; namely, one near the gate, and three on the eaſtern ſide, all of a ſquare form: but there is one in the South-weſtern corner, that has probably ſupported a round tower; though it is at preſent a mere heap of ruins. From the ſame angle, a wall ſeems to have proceeded into the ſea; and, nearly oppoſite to it, another wall is raiſed from the ſhore of the bay up the height on which the city was ſituated. Near this fortification, on the coaſt, two ſepulchral vaults had been forced open. They were ſituated beſide one another, lined with ſtones, and only a few arſhines in diameter.

The ruins above deſcribed, with their ſquares of ſtone-work, and the ſcattered buildings of a ſtill larger ſize, occupy almoſt the whole ſoil of this ſmall peninſula. The moſt diſtant wall commences at the extremity of the bay, ſomewhat behind the fortified iſle, and paſſes over the height in a ſtraight line, though obliquely from North to South, till it reaches the coaſt, at a diſtance of about 240 fathoms; where it terminates contiguouſly to a ſteep, lofty bank, and thus interſects this half-inſulated tract. On the ſide next the iſle, the wall appears to have been provided with a gate, and an outwork. It is farther probable, that a tower formerly ſtood at the diſtance of forty fathoms from the ſea-ſhore. Not unlike other interior walls, the

the principal diviſions of which form ſquares of different ſizes, and frequently of an irregular figure, the wall above alluded to was apparently compoſed of dry ſtone-work; ſo that both ſides were faced with larger ſtones, and the inner parts were filled up with ſmaller fragments. Their thickneſs exceeds two arſhines (four feet, eight inches); and, had theſe walls been cemented with clay, that tenacious earth could ſcarcely have been waſhed away, eſpecially in thoſe few places ſtill remaining at the height of ſeveral feet. Some of the inner ſquares, but particularly the exterior ones, all of which are in their diviſions raiſed of ſimilar walls, appear to have been empty, and without habitations: there is, at leaſt, no trace of dwellings diſcoverable. In other ſquares, the only veſtiges now left, conſiſt of the rubbiſh of parallel walls erected in ſtraight lines; being alternately three and four arſhines diſtant from each other, and heaped together of calcareous rock, ſo as to be nearly two arſhines thick at their baſe. From this arrangement, I am induced to conjecture, that the ſpace between every two oppoſite walls had formerly been divided into dwelling rooms, by tranſverſe earthen walls; and that the larger interſtices were deſigned for ſtreets, or perhaps the reverſe. Such ſuppoſition is rendered ſtill more probable by the occurrence of an extenſive ſquare towards the South end of the city, where the parallel walls terminate; a circumſtance which ſuggeſts the idea, that regular ſtreets had led thither in every direction. Theſe walls, which run to a ſhort diſtance from the outer ones, and thoſe forming the ſquare, generally terminate with a very large flat ſtone, the breadth of which is equal to their thickneſs. The empty ſquares appear to have been common encloſures for cattle, or

to

to have ſerved for garden-ground; and the extreme ſouthern corner, on leaving behind the laſt ſtreet or parallel wall, has probably been deſtined for a cemetery, as there is reaſon to believe from about ten heaps of ſtone-rubbiſh diſpoſed in an almoſt regular order. In the interior of the town, and at the ſea-coaſt, we noticed the foundations of ſtill larger edifices conſtructed of hewn ſtone; but the greater part of which has been removed. On the hollow ground which extends from the ſecond creek into the country, no veſtiges of buildings are diſcoverable; and on the extremity of the wide plain oppoſite the point of the light-houſe, there are only the walls dividing empty ſquares. To delineate the whole of theſe ruins, would have required more leiſure than I could ſpare during my ſhort viſit; nor would ſuch labour have been attended with adequate advantage.

The light-houſe, erected on the angle of the weſtern extremity, appears to be a modern ſtructure, which is indebted for its origin either to the later inhabitants of the Cherſoneſus, or to the Genoeſe. It is built of ſmoothly hewn ſtones, cloſely cemented with calcareous mortar. At the North-weſt ſide, where it ſtill projects upwards of ſeven feet above the wall, there is a handſome roundly arched entrance; and the inner ſpace is two fathoms and two arſhines, or eighteen feet eight inches, Engliſh meaſure, in diameter. On the ſide next the ſea, part of the wall is demoliſhed, probably in conſequence of the fragments of rock thrown on ſhore by the violence of the waves. In order to raiſe the tower, which is ſituated on the very edge of the coaſt, and to render this promontory more viſible to navigators, large pieces of white lime-ſtone have been

been accumulated, ſo as to reſemble a high cliff. That ſuch tower has been ſubſervient to the purpoſe of a light-houſe, is evident from the name of *Fanary*, ſignifying a lantern or light; and which has been given both to the whole Cape and to the Bay. If the navigation of the Black Sea ſhould become more conſiderable, it would be uſeful to erect and ſupport in this place, or rather on a more elevated ſpot of the adjacent country, another reſpectable light-houſe; with a view to prevent ſhip-wrecks during dark nights.

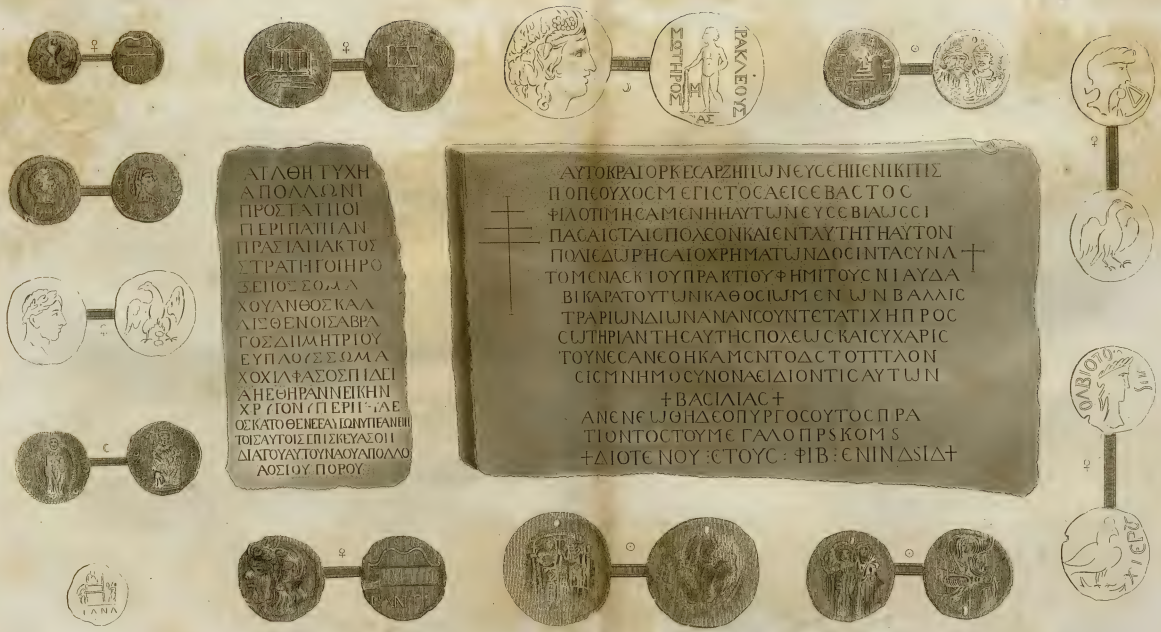
From the farm of Alexiano, which is alſo called *Novaya Zembla*, in a right line over the bay, the diſtance to Sevaſtopol is computed to be twelve verſts; about eight to the eſtate of Admiral Uſhakof (lying in a beautiful central valley of the Cherſoneſus, and being amply provided with ſpring-water); and ten verſts to the monaſtery of St. George. After meaſuring the diagonal line from the ſecond creek and the ſalt-lake to the light-houſe, I found it to be one thouſand fathoms, or two verſts in length.

The next object of my deſcription will be the remains of antiquity, occurring as well in the vicinity of Akhtiar, as on the road thence to the monaſtery of St. George, and to Balaklava. A few others, that are ſcattered about the middle of the Cherſoneſus, and whatever may appear to me remarkable in the environs of Kaſatzkaya, Kruglaya, and Streletzkaya Bukhta, I ſhall delay to inveſtigate and deſcribe, till a future opportunity affords me more leiſure than I enjoy at preſent.

In the neigbourhood of Akhtiar, at a diſtance of ſcarcely two verſts, near the weſtern ſide of the Quarantine Bay, we beheld the diſperſed ruins of the late city of Cherroneſus, which flouriſhed

in the time of Strabo. When the Crimea became a Ruſſian province, there ſtill remained the greater part of the wall raiſed of handſome free-ſtone, as well as of the fine gate leading to the city, and a conſiderable portion of the two ſtrong towers, one of which ſtood contiguous to the bay, and was in a tolerable ſtate of preſervation in 1794; but the riſe of Akhtiar has completed the ruin of that ancient city. Modern builders, careleſs about the gigantic plans and noble deſigns of their anceſtors, have removed thoſe handſome ſquare ſtones from the very foundations, and employed them in erecting new houſes, without evincing the leaſt curioſity for drawing a ſingle view, or taking the ſlighteſt architectural ſketch: at leaſt, I have not been able to procure any information on the ſubject. I had an opportunity, however, of inſpecting one beautiful inſcription on white marble, communicated in the fifth plate, and relating to ſome repairs that had taken place in the fortifications, during the reign of the Emperor Zeno: it is ſaid to have been attached to one of the towers, but is now in the poſſeſſion of my friend Hablitzl. Another inſcription, found in the ſame place, together with monograms, or characters compounded of ſeveral letters, is repreſented in the third vignette. I alſo obtained a few other trivial inſcriptions at Akhtiar, where a baſs-relief of rude workmanſhip is ſtill preſerved in the church: it repreſents the figure of a man in attire, holding a roller in his hand, and is furniſhed with an epitaph. From the following Latin, though imperfect, inſcription on ſtone, of which one half only has been found,

it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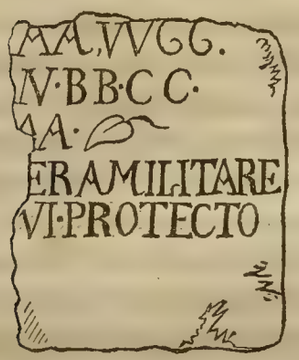
ΔΙΟΤΕΝΟΥΣ ΕΤΟΥΣ ΦΙΒ ΕΝΙΝΔΣΙΔ



it appears to follow, that this place was formerly in the poſſeſſion of the Genoeſe.

A Corinthian capital, of greyiſh-white marble, and fine workmanſhip, has been reſcued from the ruins of the late Cherroneſus, and is now preſerved by Vice-Admiral Putoſhkin. This ornamental piece of architecture is about three feet high, and two feet three inches in diameter; affording a proof that grandeur or luxury prevailed to a greater extent in the late, than in the more ancient city. It is farther aſſerted, that numerous ſpecimens of ſculptured marble, which was probably obtained from the White Sea, have formerly been dug out of theſe ruins. Copper and ſilver medals, but more rarely of gold, coined in the reigns of Gordian, Aurelian, Conſtantius, nay, even in that of Auguſtus, are found here; and thoſe of copper, with the impreſſion of an anchor, are very common. Fragments of white and blue enamel of different ſhades, as alſo of common glaſs, are diſcovered in this place; but they have become ſo completely laminated by the effects of time, as to pre-

ſent all the colours of the rainbow. Many remarkable objects might doubtleſs be ſtill brought to light, if diligent ſearch were made within the wall of the town, eſpecially in the large heap of ruins forming a kind of mount; and, if particular care were taken to prevent the articles thus obtained from being ſuppreſſed, or from falling into improper hands. A beautiful ſilver medal, in a fine ſtate of preſervation, was found among theſe ruins, and is delineated in the fifth plate; but, as I am no antiquarian connoiſſeur, and as I write at a diſtance from all literary aid, I was undetermined whether it deſerved to be copied; though it is, in my opinion, nobly executed.

The whole ſuperficies of the city, including the calcareous rocky ſhore, which is here ſomewhat elevated, and terminates abruptly, is from ſeventy to eighty thouſand ſquare fathoms within the precincts of its wall, that deſcribes ſeveral angles intended for its defence. The ancient plan of the ſtreets or houſes can, however, be no longer diſtinguiſhed; becauſe every ſpot has, by frequently digging and forcibly breaking out the hewn ſquare ſtones, been thrown into confuſion, and covered with rubbiſh. Conſidering the extraordinary population that muſt have formerly been in this place, the circumference of the town was apparently too confined to contain ſuch numbers: it is therefore probable, that a large proportion of the inhabitants dwelt on their diſtributed lots of ground, and carried on their reſpective trades, or occupations, beyond the limits of the town. In its vicinity, there ſtill remain ſeveral caverns in the terraces of the calcareous mountain, and which have perhaps ſerved as lodgings for the crews of ſhips that frequented this once magnificent city.

That

That the late Cherroneſus was furniſhed with water by means of aqueducts, is evident from the ruins of an octagonal building ſituated at the diſtance of nearly a verſt. In one corner of this ſtructure is an aperture, through which a perſon may deſcend to the depth of about five arſhines; where a narrow paſſage, extending to fifteen fathoms in an eaſtern direction, leads to a kind of well ſeveral feet deep, whence pure water riſes, overflows into the entrance, and afterwards diſappears. Behind this ſpring two other paſſages are diſcoverable, one of which is completely filled up, but the other proceeds to ſome diſtance. All theſe circumſtances indicate, that ſuch ruins belong to a former ſubterraneous aqueduct.

The numerous walls occupying the greateſt part of the Cherſoneſus, are now altogether in ruins. They had ſerved to encloſe large ſquares or oblong fields; ſometimes forming ſtreets, and, in ſome places, ſeveral rows of ſmall partitions, that are of ſimilar dimenſions with thoſe above ſtated, ſo as to repreſent the former eſtabliſhment of colonial villages. Beſide theſe walls, the fragments of which are in a manner purpoſely ſcattered over the whole ſoil, we obſerved in every direction the veſtiges of ſingle buildings conſtructed with large free-ſtones; and which had probably been towers intended to protect and to afford an aſylum to the inhabitants, when expoſed to the incurſions of the Tauro-Scythians. Such erections are moſt numerous in the lower vicinity of the city, between the road to Balaklava and the beautiful vallies watered by ſprings, where the farms of Admirals Putoſhkin and Uſhakof are ſituated. I counted thirteen, at the leaſt, within the extent of four

four verſts North and South, and two verſts Eaſt and Weſt, between the Eating-houſe, as it is termed, and the farm belonging to M. Uſhakof. Several others may be ſeen at a leſs diſtance from each other, within the compaſs of about a verſt and a half ſquare, in the environs of the fountain which lies to the South of the road leading to Balaklava. Moſt of them are quadrangular, from twelve to fifteen arſhines ſquare, and ſometimes two of the ſides are ſhorter. They have not uniformly an entrance on one ſide. In the greater number of theſe ruins, there is only one row of thoſe bulky ſquare blocks remaining, of which they were erected, and which are frequently two arſhines in breadth and thickneſs. In a few, however, we met with two or even three ſuch rows of ſtones, one piled upon another: many of them are contiguous to the ſquares of field-walls ſo often mentioned; or, in other places, the rubbiſh of ſuch ſtone-work extends to ſome diſtance into the open country. Immediately above the farm of Putoſhkin, I remarked on an eminence the regular foundation of a ſquare, occupying twelve arſhines, and conſtructed of large free-ſtones, with an entrance towards the Weſt: it is encloſed within the baſis of a lower wall, two ſides of which are thirty, and the other two thirty-two arſhines in length; ſo that the ſmall ſquare is not exactly diſpoſed in its centre. Near theſe ruins, and towards the border of the adjacent low country, there appears an edifice conſiſting of two oblong ſquares adjoining each other; and on one ſide of which I ſtill noticed four rows of free-ſtone in progreſſive order. Not far from this place, I met with another oblong ſquare meaſuring ten arſhines by thirteen, alſo

erected

erected with free-ſtones of a prodigious ſize, and having an entrance at the South ſide; on the declivity of which we likewiſe obſerved mural encloſures. Between the farm of Putoſhkin, or rather of its preſent poſſeſſor Tzukharin, and that of Uſhakof, I found on a riſing ground an old regular quarry, whence the ſquare blocks compoſing ſuch fortifications have evidently been obtained. Some of theſe ſtones were not totally detached, while others remained in a finiſhed ſtate. Many ſimilar foundations occur on both ſides of the eminence, and alſo in the valley where the beautiful farm of Uſhakof is ſituated, at the diſtance of about nine verſts from Akhtiar, and ſomewhat more than a verſt and a half from the monaſtery of St. George. Exactly oppoſite to this farm, my attention was attracted by the baſis of a more extenſive building, on an eminence forming the ſouthern ſide of the valley, and very near the road that leads from Akhtiar to the monaſtery before mentioned. Various other foundations are diſcoverable here, among which one towards the South is forty arſhines ſquare, having two ditches filled up with ſtones, not unlike wells in a ruinous condition; and in the centre of this fabric, I perceived a ſmall ſquare. Another quadrangular ſtone-work, fifteen arſhines in extent, is connected on the North-eaſtern ſide with the larger one by an oblong ſquare ſix paces wide, and which is open towards the North-weſt. Both are raiſed with very bulky free-ſtones, of which three rows are ſtill extant on ſome parts of the work. From the South-weſtern corner, a wall is drawn for about eighty paces toward the North-weſt, whence it proceeds in a northern direction, forming an obtuſe angle near a ſmall ſquare of fourteen arſhines conſtructed of free-ſtones, which are four-

teen

teen ſpans or upwards* in thickneſs, and ſeven in breadth. With this ſtructure it is connected by a tranſverſe wall; and, after paſſing by ſeveral other veſtiges of buildings, it at length terminates towards the valley, at the diſtance of about two hundred paces. As this vale conſtitutes the moſt beautiful and fertile region of the whole Cherſoneſus, it is by no means ſurprizing that ſuch a diſtrict was defended by numerous fortifications.

About three, or three verſts and a half from the new town of Korſſun, we again met with elevations, on which many circular rows of ſtones were arranged contiguous to each other; and which reſembled thoſe I have already conjectured to be tombs of the Cherſonites; but they are ſtill more numerous in the environs of the valley extending towards the bay of Streletz-kaya. The internal ſtructure of theſe ſepulchres deſerves to be examined by the ſpade; but I had no favourable opportunities during my reſidence in this country, and found myſelf deſtitute of the aſſiſtance required for ſuch purpoſe.

It now remains only to mention the plants, which at different ſeaſons of the year I obſerved to be indigenous in the Crimea. Among the trees and ſhrubs are, the Dwarf White Beech; the Dwarf Elm; the Grey Oak or *Cerris*; the *Juniperus Phœnicia*, *Pyrus nivalis*, *Prunus ſpinoſa*, *Paliurus*, *Roſa*

* The accuracy of this vague mode of calculating appears to be very doubtful: for, if each *ſpan* be computed at nine inches, thoſe marvellous hewn ſtones muſt have meaſured ten feet ſix inches, by five feet three inches; a ſize of which there occurs no inſtance in ancient or modern architecture. On the whole, it ſhould be remarked that, from the author's perplexed and diſtorted ſtyle, it is in many inſtances almoſt impoſſible to form a correct idea of the objects deſcribed, or to tranſlate his text into plain language.

Tranſl.

ſpinoſiſſima

ſpinoſiſſima and *pumila*, *Jaſminum fruticans*; then the *Peganium Harmala*, *Zygophyllum fabago*, and the *Ruta officinalis*, all of which delight in the rubbiſh of old buildings; farther, the *Ruta linifolia*, *Euphorbia myrſinites minor*, and ſome other ſpecies of the Spurge; the *Statice trigona*, *Lychnis dioica* and *Conoidea*, *Linum narbonenſe*, *hirſutum*, *ſtrictiſſimum*, *flavum*, and *ſerotinum*; ſeveral ſpecies of the *Medicago*, the *Serpyllum citri odore*, *Sideritis Syriaca*, and *montana*, *Iris pumila*, *Aſphodelus luteus*, *Ornithogalum monile*, *Allium arenarium*, and the *Scilla autumnalis*.

A remarkable ſpecimen of antiquity, though of later conſtruction, is the old fortreſs of Inkerman, erected at the extreme point of the harbour of Akhtiar, together with the neighbouring caverns, which I propoſe to deſcribe, on account of their contiguous ſituation. I ſhall not attempt to decide, whether it was a place of defence at that early period, when the Cherſoneſus

ſoneſus was inhabited by Greeks; or whether it muſt be conſidered, according to FORMALEONI *, as the *Ctenus* of the ancients; or, laſtly, as appears to me more probable, whether it be the work of the Genoeſe. The caverns, however, are obviouſly of more ancient date, and have, in my opinion, been excavated by monks, during the reigns of the Emperors in the middle or later ages. As, according to the Byzantine hiſtorians, the inhabitants of the Cherſoneſus were Arians; and, as that numerous ſect diſperſed throughout the Eaſt was afterwards ſeverely perſecuted in the Greek empire, it may be rationally ſuppoſed, that many monks, and perſons attached to their religious tenets, fled to Korſſun. Unable to procure an aſylum in this city, they began to form cells, and to conſtruct chapels, in the ſoft calcareous rock, both here and in many parts of Crim-Tartary; where they peaceably followed a monaſtic life, adhering to the principles of their ſect, poſſibly with the hope of converting the ſavage inhabitants. Similar cells or dwellings, formed within rocks, occur in a terrace of the calcareous mountain to the North-north-weſt of the village of Karani, near Balaklava; farther, in the rocks ſituated in my own manorial diſtrict of Karakoba, and below Mankup, beyond the village of Shulü, which is alſo my property; and, laſtly, at Tepe-Kermen, and Kis-Kermen † in the vicinity of Shürü, on the banks of the Katſha, near the Jews' fortreſs Dſhufut Kalé;

* *Hiſtoire philoſophique et politique du Commerce, de la Navigation, et des Colonies des Anciens dans la Mer Noire. Veniſe*, 1789, 8vo. *Tom. II. p.* 263.

† *Kis-Kermen* ſignifies the fort of virgins; which, according to tradition, was inhabited by maiden ladies, who at length precipitated themſelves from the rock. They were probably nuns.

as well as in ſeveral other places, where the ſoft calcareous rock was eaſily worked by the chiſel. We have, indeed, a modern ſpecimen of ſuch architectural ſculpture in Ruſſia, and which is performed by Greek monks in the wealthy convent of Svatogorſkoi, at a ſhort diſtance from Tor, and Iſium. This monaſtery has been dug to the length of fifty fathoms, or three hundred and fifty Engliſh feet, into a high chalky mountain, overgrown with wood, on the banks of the Donetz. There are ſeveral natural ſpires, two of which in particular reſemble artificial turrets erected above the church, though conſiſting entirely of ſoft chalk.

In-Kerman, or literally the Town of Caverns, has received its name from the cells excavated within the rock. The calcareous ridge, above alluded to, extends to the port of Akhtiar; approaches a ſimilar mountain, ſituated on the oppoſite ſide, at the diſtance of ſcarcely one verſt and a half from the mouth of the rivulet Beeyouk-ouſehen, which empties itſelf into that harbour: thus it contracts the valley conſiſting of rich meadows; and here ends in ſteep rocks. The mountainous ridge terminates, toward the right ſide of the ſmall river, in two projecting angles forming ſtraight rocky walls; the firſt of which exhibits evident ſtratifications: in the moſt remote corner, there are numerous cells diſpoſed in ſeveral rows one above another. A view of this ſituation has been taken from the South ſide, and the reader will find it diſtinctly repreſented in the ſixth plate.—A prodigious maſs of rock (being of a ſize at leaſt equal to that employed for the pedeſtal ſupporting the ſtatue of Peter the Great at St. Peterſburgh), which contained a few demoliſhed cells, had tumbled down in the winter of 1793-94, and lay on the

the lower road when I firſt viſited that place; but the ſailors have ſince divided this maſs by the ſaw, and carried off the ſquares for the uſe of buildings. On the ſecond projecting corner, a fort has been erected. This rock is likewiſe on its South ſide ſo completely excavated, that its open cells, which, like ſtories of a houſe, are divided into rows, reſemble at a diſtance in ſome directions the form of bee-hives; and the walls, or ſpaces intervening between theſe cells, are frequently leſs than a ſpan in thickneſs. On the South-weſt is the church, conſiderably above ground; beſide which, there are a few ſcattered caverns, and two flights of ſteps leading to the former. Here the rock forms a precipice as ſmooth as a wall; projecting, however, at one corner in a terrific manner, ſo as to repreſent the ſegment of a Gothic arch. It is hollowed at its baſe, probably by the effects of water, and has conſiderable empty ſpaces or grottos. The whole appears to be almoſt a ſolid rock, without particular ſtrata, being divided only by a few horizontal veins, and conſiſting throughout of ſmall ſhells, of ſimilar fragments, and diminutive ſmooth entalites.

The church, of which an internal view is delineated in the fourth vignette, has been formed out of a ſingle piece of this rock. On both ſides of the altar erected in a niche, there is a choir formed of the ſame rock; and we likewiſe on each ſide obſerved a ſarcophagus of ſimilar workmanſhip depoſited on the floor. In the latter, we underſtood, have been found the bones of perſons who were probably revered for their ſanctity; of which, however, no veſtiges can be diſcovered. The length of the chapel is about three fathoms and a half, or twenty-four feet ſix inches; and its height, one fathom

fathom and three quarters, or twelve feet three inches.—Similar ſarcophagi, of coarſe workmanſhip, are frequently found contiguous to one of the walls, within the cells that communicate with each other, and alſo with the upper rows. But, in every direction, the cells and ſtairs are beginning rapidly to decay; and many of the latter have already become inacceſſible, in conſequence of large maſſes having been diſengaged from the rock. There is a ſtair-caſe that leads from the church upwards to the level ground occupied by the fort; of which a ſtrong wall, extending tranſverſely over the ſteep corner of the rock, together with ſome towers in a very ruinous ſtate, and a deep foſſe, are ſtill extant; though the corroſive effects of time are evident, both in all the maſonry-work, and in the caverns of the rock.

On departing from this place, we met with a paved, though execrable road; and croſſed, in an oblique direction, a dale about thirty fathoms broad, and a brook, by a very decayed ſtone-bridge of three arches; beſide which, there is another of one arch, conſtructed over a collateral arm of the ſame rivulet, but likewiſe much impaired. Both ſtructures are apparently of great antiquity. Towards the Weſt of this brook, the mountain adjoining the left ſide of its mouth, forms a long rocky wall with a projecting angle, which again proceeds with a ſimilar elevation towards the bay, where it gradually declines. At the corner, we obſerved ſome grottos in the rock, and a paſſage that leads by tranſverſe ſteps to the upper parts; in aſcending which we paſſed three grottos open from without, and ſome others towards the left, hewn within the hill. This entrance conducts to a chapel, which is cut out and ſupported by

by ſeveral arches of the ſame material; but the falling of the rock has deſtroyed part of its exterior wall. Beſide the chapel, which is ſituated exactly at the corner, there begins another convenient paſſage, likewiſe excavated in the rock. It extends upwards of one hundred paces along the declivity towards the bay, and has only two openings for the admiſſion of light. Where this walk terminates, and whether any grottos may be connected with it, cannot be aſcertained; for it is at preſent, like moſt of the grottos, employed as a gun-powder magazine; and is conſequently both locked up, and guarded. Notwithſtanding the exhalations ariſing from the ſalt-marſhes in the neighbourhood, the powder depoſited in theſe cellars is not only preſerved in a dry ſtate, but it has alſo been obſerved to acquire an additional degree of ſtrength, if it be ſuffered to remain there for a conſiderable time.—About five hundred paces from the corner, up the rivulet before mentioned, ſeveral well-executed grottos appear beneath the rocky bank, which extends to nearly one hundred paces in length. Some of theſe have likewiſe been converted into powder-vaults: and at the farther diſtance of one hundred paces, namely between the ſteep mountain and the rivulet, which is here frequently a fathom and a half in depth, we could trace the veſtiges of a wall that is again continued on the oppoſite bank as far as the mountains; and on this ſide it appears to have been furniſhed with a gate.

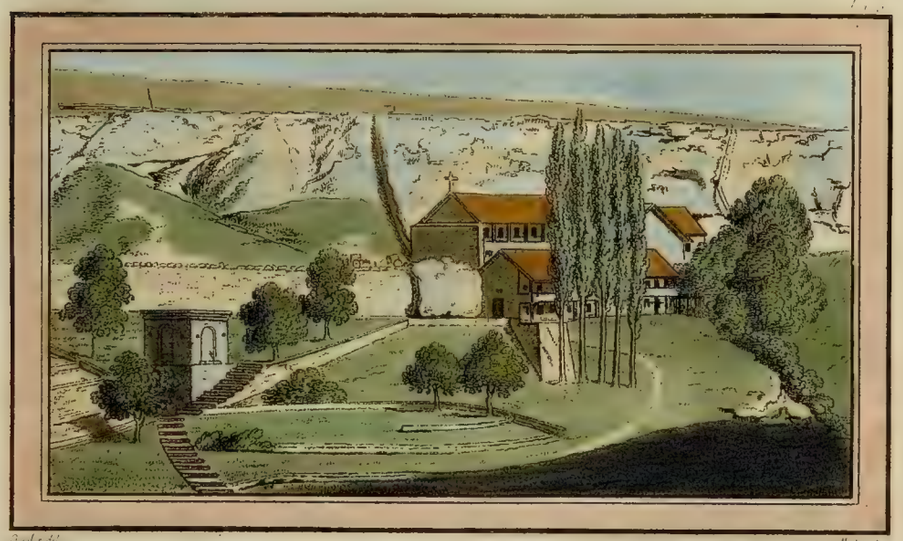
After croſſing the mouth of the rivulet Beeyouk-ouſehen, in a boat to Akhtiar, the calcareous mountains of Inkerman, particularly on the right of this port, imperceptibly diminiſh; and at length form a level ſurface towards the Severnaya-Koſſa, or the

the north-point of the harbour's mouth. Several caverns again occur in the rocky bank, on the left, at ſome diſtance from the mouth of the rivulet; and, on an inacceſſible part of the ſame high bank, there is an extenſive cavity, probably deſigned for a chapel, with ſome contiguous grottos. Somewhat farther, though ſtill on the ſea-coaſt, and nearly on a level with the water, we noticed a ſquare rock, which is apparently cut out of a larger maſs, being excavated within, and having a reſpectable entrance: it has ſeveral holes for the admiſſion of light, and is now likewiſe uſed as a magazine for preſerving gun-powder.

It is inconceivable, how a multitude of monks could exiſt in the valley near Inkerman, which is extremely prejudicial to health; eſpecially when it is conſidered that perſons, ſent hither for a ſhort time, in order to make hay or to tend cattle, during the ſummer, cannot eſcape malignant agues; nay, that others, from a tranſient viſit to this place, have become indiſpoſed, by once reſpiring the pernicious morning or evening air. It is even aſſerted, that ſuch peſtilential vapours generate diſeaſes in the town of Akhtiar, when the wind proceeds from the bay. Other effects, indeed, cannot be expected from thoſe extenſive marſhes, that environ the mouth of the rivulet as well as the extremity of the gulf, both of which are frequently inundated by the ſea. This low region, however, is productive of ſuch curious plants as are rarely found in any other part of the Crimea. During the ſpring and ſummer, I met with copious ſpecimens of the *Salicornia*, *Statice Limonium*, *Salſola Soda*, *ſativa*, and *altiſſima*, *Chenopodium maritimum*, and other marine vegetables; farther, in abundance, the ſmall

celery,

celery, and the *Leucojum vernum*, commonly with four flowers. On a more elevated ſoil flouriſh the *Elaterium* and the *Ononis inermis;* but, on the calcareous mountains, I diſcovered the rareſt ſpecies which are peculiar to this peninſula. The ſhrubs, growing on the low tract above alluded to, conſiſt of the *Prunus ſpinoſa*, *Pyracantha*, *Pyrus orientalis*, *Rubus ſanctus*, *Clematis Vitalba*, native vines, and roſe-buſhes.



The laſt object worthy of notice, during the journey hitherto performed through the Heracleotic Cherſoneſus, is the Greek monaſtery of Saint George, called *Georgiefskoi-Monaſtyr*. When I firſt viſited Akhtiar, I croſſed the country in a diagonal line, and proceeded directly to this convent, after paſſing the farm of Uſhakof. The ſpring had unfolded its earlieſt flowers, among the firſt of which was a ſmall *Ornithogalum*, greatly reſembling the *luteum:* its root conſiſted of a ſeries of ſmall round bulbs, tranverſely attached to each other. The laſt of theſe globular bodies regularly flowers, and produces a new one from its own ſubſtance for the ſucceeding year; while the others in the row preſent only empty huſks.

The monaſtery of St. George is ſituated in a ſlight excavation of the ſouthern, rocky, and very high ſhore of the Cherſoneſus;

ſoneſus; between the terrific promontory of Aya-Burun, already deſcribed, and the prominent corner of a rock called *Georgiefskoi Muis*, or Cape George. From the uppermoſt, and uniformly rocky terrace of this prominence, the ſhore declines with alternate ſteep elevations to the level of the ſea; ſo that the higheſt narrow terraces have been adapted to dwellings, and thoſe in the lower parts have been converted into vineyards. Various trees, and eſpecially the black juniper-tree, or *Juniperus Lycia*, reſembling the cypreſs, occaſionally grow between the rocks. The ſeventh plate will afford a diſtinct view of the ſituation of the monaſtery, the gardens, and the whole coaſt, being drawn from the ſummit of its projecting corner; in the vicinity of which a blackiſh rock is ſituated within the ſea. It is, however, a difficult taſk to delineate, with ſufficient perſpective accuracy, ſuch views as are taken from an eminence; but the reader will at leaſt be enabled to form an idea of the plan of this convent, which is farther illuſtrated in the fifth vignette.

We deſcended to the monaſtery at the interſected part of the ſhore, between calcareous ſtones reſembling oolites; though, on examination, they were found to conſiſt entirely of minute, incruſted ſnails, not unlike grains of millet. In ſome places, large free-ſtones, ſimilar to thoſe employed in the ancient ſtructures of the Cherſoneſus, had been broken from the rock; and the ſame ſpecies of foſſil ſeems to have ſerved for the buildings in the vicinity of Admiral Uſhakof's farm. An antique column, compoſed of lime-ſtone without any capital, is ſhewn to travellers; but it is executed in very accurate proportions. It is ſaid to have been diſcovered beyond the convent,

when part of the rocks was precipitated on the ſhore. This pillar is three arſhines and a half, or eight feet two inches high, and its greateſt diameter is thirteen inches; being ſomewhat thicker in the middle, and apparently of great antiquity. Hence ſome perſons have been induced to conjecture, that the *Fanum dæmonis virginis* may have been ſituated here, beyond the convent; though no veſtige of it is obſervable on the ground between the building near Aya-Burun before deſcribed, and the rocky point oppoſite the black cliff. The real ſituation has been ſo disfigured by the gradual falling down of rocks, as to be aſcertained with difficulty. Even at this moment, the rocks ſupporting the upper terrace, impend ſo remarkably over the church and convent, that the ſlighteſt earthquake would occaſion their downfall. Beneath theſe precipices occur ſeveral grottos, ſome of which are inhabited by monks, while others are employed as poultry-houſes. In their vicinity, I noticed thoſe beautiful fig-trees which reſiſted the ſevere winters of 1798 and 1799, though ſimilar trees were then killed in ſome of the vallies. The ſituation of this convent, however, is uncommonly warm, being directly expoſed to the meridian ſun, and ſecured from all cold winds; but, during the prevalence of tempeſts from the South and South-weſt, it preſents terrific ſcenes. The monaſtery conſiſts of a ſmall church, a ſpacious refectory connected with it by covered paſſages, and of ſome tolerable apartments, which are inhabited by a few Greek monks. There alſo reſided here a ſuffragan; and the place is celebrated for the parties of pleaſure, and the pilgrimages that are undertaken on St. George's day, in the month of April, principally by the Greek families throughout the Crimea.

Theſe

Theſe excurſions are particularly gratifying to females. Immediately below the convent, a ſpring of excellent cold water iſſues from the rock; it is well encloſed, and ſerves to irrigate the vineyards cultivated on the lower terrace. On the rocky wall, the *Elaterium*, and other plants, which delight in warm ſituations, grow in abundance. Botanical purſuits, however, are attended with difficulty; and, after deſcending this winding path to the ſea-ſhore, even perſons provided with the beſt lungs will, without reſting, be ſcarcely able to climb up as far as the convent.

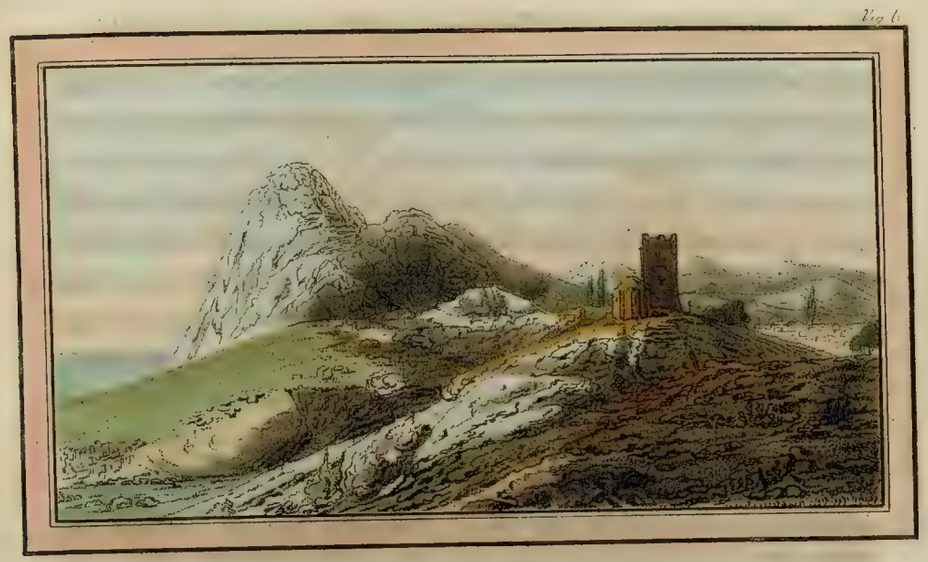
On the ſhore, near this monaſtery, three different ſpecies of rock may at one view be diſtinguiſhed: thus an idea may be formed reſpecting the orography of Crim-Tartary. Uppermoſt, appears the lateſt bed of lime-ſtone, which is copiouſly mixed with teſtaceous fragments and oolites, the whole ſurface being covered with thick ſtrata: below the convent, lies a ſtill more ancient calcareous ſtone, or more properly a rock approaching to marble, and forming ſolid maſſes without regular gradations; but the fiſſures are interſperſed with vitriolated martial ochre: and this foſſil alſo preſents itſelf on the ſurface of the Sacred Promontory, termed *Aya-Burun*, as well as in the more diſtant mountains towards Balaklava; while the modern calcareous bed terminates here. Laſtly, near the ſea, and eſpecially at the eaſtern corner of the rock, which forms the bay of the convent, there occurs a dark grey and often browniſh argillaceous ſchiſtus, coarſely laminated, and in which both pebbles and octahedral marcaſites are occaſionally diſcovered. The red jaſper, obtained in fragments on the declivity of the rock, is ſomewhat veined with chalcedony, and appears to originate from a vein or cleft;

as

as ſome of the latter are filled with a red bole and vitriolic earth. Among the different ſprings iſſuing from the ſteep ſhore, there is one impregnated with iron.

Since my firſt viſit to this monaſtery, when there ſtood only a wooden croſs on the lofty coaſt, and the traveller was agreeably ſurprized with the ſudden proſpect that appeared before him on the way leading to the convent, a chapel has been erected to the memory of a Greek, who is there interred. General, now Count, Kachoffky, has alſo cauſed a large quantity of prodigious free-ſtones, taken from the ruins of the ancient Cherſoneſus, to be conveyed hither, with a view to erect a ſimilar chapel to the memory of his conſort, who is likewiſe buried in this place; but the Count has not carried his deſign into execution.

Fig. 6



Journey to Tſhorguna, Balaklava, and along the South-weſtern Coaſt of the Crimea.

My firſt excurſion to Akhtiar, and into the Cherſoneſus, greatly increaſed my deſire of exploring Crim-Tartary. Immediately after my return, I availed myſelf of the vernal ſeaſon; and without heſitation accompanied my friend HABLITZL to his eſtate of Tſhorguna; in order to continue my farther journey into the mountains, directing my courſe along the ſouthern coaſt of the Crimea.

On Eaſter Sunday, I departed with my conſort and daughter, whoſe curioſity of viewing ſome beautiful tracts of this peninſula had likewiſe been excited. I have already deſcribed my journey to the banks of the Belbek: but we here quitted the weſtern poſt-road leading to Akhtiar, and proceeded in a direct line

line towards the South-weſt, on the imperial road by which the Empreſs viſited Akhtiar, Balaklava, and the celebrated valley of Baidari. After paſſing the Belbek, at the diſtance of about twelve verſts from Bakhtſhiſarai, we began to aſcend, at firſt gradually, but afterwards over ſteeper eminences, the lofty calcareous mountain already mentioned, and the continuation of which I ſhall more particularly deſcribe in the ſequel. Its ſoil in theſe regions is well covered with trees, eſpecially with the *Carpinus minor*, or Dwarf Yoke-Elm, bearing ſmall leaves, and being the moſt common production of the Crimea. This tree is interſperſed with the *Paliurus*, with Sloe-trees, the *Cornus mas*, *Viburnum Lantana*, the ſhoots of which afford the tubes for tobacco-pipes that are in great requeſt; with the *Oxycedrus*, *Liguſtrum;* and, in a few places, with the *Cercis*, or Judas-tree. On the northern ſide, the large-flowered *Primula uniflora* was now in bloſſom, and uncommonly abundant; bearing in general white, leſs frequently pale yellow, and more rarely pale violet flowers. The *Dentaria pentaphyllos*, *Veronica Teucrium*, and *Euphorbia ſylveſtris*, were beginning to blow; but the *Scilla hyacinthioides* had already flowered. The beautiful Crimean Wood-Piony, or *Pæonia triternata*, was in full vigour. Abundance of ſage, and of the *Seſeli dichotomum*, was conſpicuous on the South ſide of the dry chalky mountain. Previouſly to our arrival at the ſummit, we obſerved on the left, at the diſtance of about three-quarters of a verſt from our road, the tower of an ancient fort, called by the Tartars Tſherkeſs-Kermen, or the Circaſſian Fortreſs, and which has given its name to a village formerly inhabited by many Greek families, but at preſent excluſively by Tartars. The moſt remarkable

object

object in the vicinity of this ruinous caſtle, is a deep fountain, with ſteps hewn in the rock, but which cannot be deſcended without danger. It is ſituated at the diſtance of ſeveral hundred fathoms from the fort.

On the ſummit of the mountain, Admiral Mackenzie, late Commander of the Fleet at Akhtiar, eſtabliſhed a farm; for the erection of which, a conſiderable portion of the woods was granted to him, but ſubſequently repurchaſed by the Crown for the ſupply of the navy. Since that period, the hill has, among the Ruſſians, retained the name of Mackenzie. This part of the calcareous ridge is, by the Tartars, called Kok-Agatſh, on account of the numerous white beech-trees growing on its ſoil. The road, on deſcending from the eminence, is ſo exceedingly ſteep, that notwithſtanding many windings and great exertions, it becomes neceſſary to chain the wheels.

On arriving at the lower part of this craggy ridge, an extenſive tract, diverſified with level grounds and gentle elevations, preſented itſelf to our view. The whole is eight verſts in breadth towards the mountains of Balaklava, and becomes ſtill broader in the direction of Akhtiar and the Cherſoneſus. On a gentle elevation of this tract, to the left of our road, we obſerved the pits from which is obtained the Keffe-Kil, thus called by the natives; a ſubſtance conſiſting of an excellent grey ſaponaceous clay, or a ſpecies of Fuller's-earth. The whole eminence ſcarcely riſes from fifteeen to eighteen fathoms above the level of the valley, and is in a manner burrowed by the Tartars. Its ſurface is overſpread with oaks, white beech, cornel-trees, and Chriſt's thorns. The miners are obliged to dig pits in the form of an inverted cone, to the depth of from

eight to twelve fathoms, before they can penetrate through the incumbent brittle chalky marl to the bed of clay, on which they generally meet with water. The latter ſtratum is about twenty-eight inches in thickneſs; has underneath an uncommonly tough cruſt, of a colour reſembling that of the clay itſelf; and, beneath it, there is again a white cretaceous marl. Old pits, originally made in queſt of ſuch ſaponaceous clay, are ſtill diſcernible at the edge of this eminence; and it is probable that the Fuller's-earth, in ſome parts, appeared on the ſurface; as otherwiſe it could not poſſibly have been diſcovered without ſome extraordinary chance, or fortuitous event. The Tartars, who are uſually hired during the winter for this purpoſe, work without any ſcaffold, and are expoſed to great danger by digging at firſt vertically, but afterwards in an horizontal direction, to the depth of ſeveral fathoms, as far as the nature of the mountain will permit. The upper ſtrata are ſecured from falling down, ſimply by ſupporting them with poſts; and thus the miners break out the clay by placing themſelves ſideways within the pit. The perſon who farms the mountain, allows the workmen two-fifths of the whole produce for their labour; and, when they have penetrated to a ſufficient depth, and emptied one of the mines, it is again abandoned and ſpeedily filled by the pieces of marl detached in conſequence of ſuch excavation. Great quantities of this clay, which is known under the name of Keffe-Kil, or earth of Kaffa, were formerly exported to Conſtantinople, where it was uſed in the baths by women for waſhing their hair. It is dug out partly here, and partly at the diſtance of ſixteen verſts from Akmetſhet, near the rivulet Sabla; though it has alſo been

been diſcovered, in a valley near Karaſſubaſar, below the ſteep cretaceous mountain of Akkaya. At preſent, however, only a ſmall quantity of it, or about one hundred poods annually, is exported; becauſe, during the late war, when the commercial intercourſe with the Turks was interrupted, ſo that they could not be ſupplied with this article, reſearches were made in Anatolia, where an earth was diſcovered, which is in every reſpect ſimilar to that formerly obtained from the Crimea, and which now ſerves as a ſubſtitute at Conſtantinople. Its conſumption in Crim-Tartary itſelf is inconſiderable; though the pood is ſold at all the markets for the low price of twenty kopeeks. The woollen cloth-manufactory eſtabliſhed in the town of Novoroſſeiſk, formerly Ekaterinoſlavl, could employ ſuch mineral with great advantage; as in colour and quality it is not inferior to Engliſh Fuller's earth, excepting that it is occaſionally mingled with a ſmall proportion of lime, and ſometimes alſo contains diminutive kidney-ſhaped and globular pyrites.

At the diſtance of ſix verſts from Muilnaya Gora, or the Soap-hill, we arrived at the village of Tſhorguna or Karlofka; though in general it is by the Ruſſians called Tſhernaya Derevna. It lies on the left of the road leading to Balaklava, in an adjoining and gradually contracting valley, from which the rivulet Beeyouk-Ouſehen, or Kaſikly-Ouſehen, openly diſcharges itſelf into the bay of Akhtiar. In this village, belonging to my friend Hablitzl, we paſſed the Eaſter holidays, under his friendly roof. Notwithſtanding the vicinity of dry rocky mountains, its ſituation is highly romantic; together with the ancient tower that may be ſeen from the Balaklava road, and

which greatly improves the landſcape: I have therefore cauſed a drawing of this charming proſpect to be taken from one of the terraces ſituated North-weſt of the entrance into the valley, and which is repreſented on the eighth plate. In an orographical reſpect alſo, Tſhorguna deſerves every attention; becauſe the different ſpecies of Tauridan mountains here ſeparate. Laſtly, the agreeable days I have enjoyed at this hoſpitable place, will never be obliterated from my memory; as it has repeatedly afforded me an aſylum for repoſe after my excurſion to the weſtern mountains of the Crimea, and alſo ſerved as the point of re-union with my relations.

In the village itſelf, which is divided into two parts, the rivulet Beeyouk-Ouſehen, or the large brook proceeding from the valley of Baidari, receives on its right bank the collateral brook Ai-thodor*, that flows through another dale, in an eaſtern direction, along the calcareous ridge often mentioned; and, a few verſts higher from this place, it alſo unites on its left bank with the rivulet Bargana. Like all the rivers and brooks of Crim-Tartary which flow from mountainous parts, it is ſometimes a rapid ſtream, and ſometimes nearly dry; ſo that it has not ſufficient water to turn a mill erected in this place. Even the ſmall brook Ai-thodor, which in its higher parts, about two verſts from Tſhorguna, interſects a valley and orchards that are my property, and affords a ſcanty irrigation, has been obſerved to ſwell very ſuddenly after tempeſtuous ſhowers, and to become ſo formidable that no perſon would

* The ſyllable *Ai* or *Aja*, which frequently occurs in the names of places derived from the Greek, is the *Hagios* of that ancient language; conſequently, Ai-thodor ſignifies St. Theodore.

venture

Vol 2. Pl 8

Gruber del.

Mitland sculp.

venture to paſs it. Nevertheleſs, the Beeyouk-Ouſehen can be ranked only among the Crimean ſtreams of the ſecond claſs.

The lofty octagonal tower of Tſhorguna is erected of maſſy free-ſtones. It was, according to tradition, built by one of the Turkiſh Baſhaws reſiding here, and was originally deſigned for the protection of the villages, ſituated in its vicinity, from the depredations of banditti. I am, however, induced to believe, that this ſtructure is the work either of the later inhabitants of Korſſun, or of the Genoeſe, and has probably ſerved for maintaining the communication between Balaklava and Fort Mankup; the former lying at the diſtance of ſix, and the latter at that of ten verſts, being on the upper banks of the brook Ai-thodor. The tower before alluded to is ſo remarkably ſtrong, that the frequent diſcharges of ſmall cannon placed upon its platform, have not in the leaſt degree affected its ſolidity.

Beſide this tower, we noticed the houſe formerly occupied by the Turkiſh Baſhaw. It is on all ſides provided with a gallery; and, though the whole building is ſlightly conſtructed of timber, yet it ſtill forms a very ſolid fabric. The preſent poſſeſſor has embelliſhed it with an orchard and flower-garden, in the European taſte; and, at a little diſtance in the valley, he has planted a conſiderable orchard. Another ſmall, but elegant brick dwelling, erected in this neighbourhood in 1796, ſtands empty; and the inner parts are unfiniſhed, its proprietor being abſent.

With reſpect to the evident and ſtriking varieties of foſſils, which the mountains here preſent in horizontal beds, and which

which I have farther obſerved throughout Taurida, it will be uſeful to enter into a more particular account; as, otherwiſe, the following deſcription of the weſtern mountains along the ſea-coaſt could not be clearly underſtood.

I have already, on ſeveral occaſions, eſpecially in pp. 11, 20, 21, 42 and 93, mentioned the more recent calcareous ſtratification which compoſes part of the plain country, and alſo forms a conſiderable portion of the Crimean mountains; ſo that being often from forty to fifty verſts and upwards in breadth, it repreſents nearly the ſegment of a circle, extending from Inkerman to the environs of Kaffa. From the northern plain of the peninſula, this horizontal calcareous bed at firſt riſes with a level ſurface, which afterwards becomes uneven, or in a manner undulated. In its farther progreſs toward the mountains, it exhibits ruptured hills, or ſuch as are interſected by vallies; and they uniformly, though gradually, decline towards the northern points of the compaſs. In a ſouthern direction, however, they terminate abruptly, forming in general rocky ſerrated terraces; the layers of which, when diſcernible, likewiſe appear to be gently elevated above the horizon. Theſe ſtrata are in ſome places compoſed of a more or leſs compact limeſtone, which frequently lies bare to a conſiderable extent, and is apparently caſt in one ſolid piece, without any viſible petrifactions. In other ſituations, it conſiſts of a leſs concrete lime, approaching to marl, divided into layers, and abounding either with lenticular ſtones, or with numberleſs minute ſnails granulated like oolites. In a few other parts, it is ſparingly interſperſed with large petrified oyſters, both of the common and of the creſted kind; or it is entirely

compoſed

compoſed of the fragments of ſhells. Laſtly, alſo, it exhibits a cretaceous marl, or a very calcareous and ſoft clayey marl, but more rarely a mellow chalk. The ſolid beds of lime are frequently mixed with ſmall pebbles only, or at the ſame time with ſhells and their fragments, or contain large portions of ſand and gravel. Similar ſtrata, of a yellowiſh ferruginous foſſil, the conſtituent parts of which are a hard ſandy marl replete with quartzoſe flints, appear at the top, are eaſily decompoſed by the air, and the ſurface is often partially covered with gravel; ſo that a ſuperficial obſerver might be led to believe, that theſe diminutive pebbles had been conveyed to the heights by the force of water. Such tracts likewiſe occur near the banks of the Salgir, thoſe of the brook Fondukly, and in ſeveral places on the road leading to Karaſſubaſar.

The calcareous hills, ſingly as far as the banks of the Belbek, are divided partly by extenſive plains, partly by narrow defiles, and again combine between the Belbek and Kaſikly-Ouſehen into a connected lofty ridge, which is the higheſt part of the more recent ſtratification of lime in the whole Crimea; conſiſting almoſt entirely of cretaceous marl, that often breaks into cuneiform fragments, or exhibits marine ſhells in its compoſition. No petrifactions can be traced in this ridge, but it contains many particles of pyrites; and likewiſe declines gradually towards the North, where it is covered with a thin ſtratum of black mould. In a ſouthern direction, it terminates abruptly, preſenting barren white terraces and precipices; while on its northern ſide it encloſes the extenſive valley watered by the Kaſikly-Ouſehen; of which, however, it forms the elevated part. Such ridge commences with the mountains

mountains of Inkerman, that terminate towards the ſea near the bay of Akhtiar, where the caverns or grottos are hewn in a more ſolid calcareous ſtone. It proceeds at firſt towards the Eaſt, then to the South-eaſt, under the names of Kokkagatſh and Tſhertelkaya, to the diſtance of ten verſts and upwards. In its progreſs, it forms high rocky terraces called Tſhaplak-Kaya*, near the village of Marmora, which was formerly inhabited by Greeks, but is now deſerted. It farther riſes along the brook Ai-thodor, where it is termed Shuldan or Shuludan-Kaya; being interrupted near the village of Shulü, by a deep and narrow valley extending tranſverſely to the Belbek; and, at the bank of this rivulet, it is by a violent revolution of nature apparently ſplit and divided into many ſcattered portions of rock; though, at the eaſtern ſide of the valley, it again continues without interruption, as will be explained in the ſequel. This narrow valley in which the ſmall brook Souk-tſheſmé riſes and takes its courſe to the Belbek, is contracted to ſuch a degree, (between the Shuldan-kaya itſelf, the abrupt angle of which is called *Elli-Burun*, or the tempeſtuous corner, and the lofty rock Makkup or Mankup, where the fort of that name is ſituated, and hereafter to be deſcribed,) that I could not without great labour and expence procure a coach-road through ſuch defile to the village of Shulü. On both ſides of the dale, the proſpect is intercepted by ſtraight rocks, from which prodigious blocks are precipitated every winter. A few years ſince, remarkably large pieces were diſengaged from the rock of Mankup, and partly thrown over the brook Rikoſhet, ſo as

* Beneath theſe terraces, there are monaſtic cells hewn into the rock, known by the name of Karakoba, and which reſemble thoſe we noticed at Inkerman.

to

to reach the contrary ſteep ſide of the valley.—On the North-eaſtern quarter, the rock of Mankup is ſeparated from the calcareous ridge by a ſimilar deep valley, in which a ſmall brook likewiſe riſes. The oppoſite rocky walls of theſe vallies appear exactly as if the mountainous tract had in this place been ruptured and divided by ſome powerful natural event; and ſuch conjecture, in accounting for their origin, is rendered ſtill more probable by the rent appearance of the rocks towards the Belbek. For it cannot be eaſily conceived how thoſe inſignificant ſtreams, which purl down in ſmall caſcades, could have effected ſuch excavations. The elevated ſurface of the hills along the whole valley, above the rocky walls, as well as the mountain of Mankup itſelf, is thinly covered with the *Pinus maritima*, which, except in this place and on the hills around the village of Ai-thodor, no where occurs in the Crimea, at ſo conſiderable a diſtance from the ſea.

Beyond the tranſverſe valley near Shulü, the middle of which is thus occupied by the very extenſive rock of Mankup, the high calcareous ridge again preſents ſteep rocks on its ſouthern ſide; and, after becoming ſtill loftier, it proceeds in a North-eaſtern direction towards the village of Albat, where it declines near the banks of the Belbek. On the oppoſite ſide of the river, however, it is leſs elevated, being interrupted by the Katſha and ſome other vallies; it then takes its courſe North-north-eaſt; and at length terminates at the diſſevered calcareous mountains in the vicinity of Bakhtſhiſarai, Dſhufut-Kalé, and the village of Manguſh, which is inhabited by Moldavian coloniſts. It will be evident that I have here collectively ſtated the obſervations made during ſeveral journies,

and at different times, in order to deſcribe this ridge of calcareous marl throughout its whole extent, amounting to upwards of twenty-eight verſts; though it is leſs capacious, and more frequently divided into hills, in the weſtern quarter of the Crimea.

Such mountainous ridge, indeed, appears to have been depoſited on the more ſolid lime-ſtone, which frequently contains a greater proportion of marine productions in a decompoſed, though diſcernible ſtate. For this foſſil re-appears in the valley of Kaſikly-Ouſehen, forming, as I have before obſerved, the ſurface of the whole Cherſoneſus. In lofty ſituations it is often expoſed at the top, and its ſtrata likewiſe evidently decline from the higher ſouthern coaſt towards North-weſt, in a very gradual manner. In its more elevated parts, eſpecially towards the ancient ſtratified mountains, it occaſionally preſents ſteep and abrupt borders. One of theſe precipices occurs beyond the vallies of Balaklava and Karani, in a tranſverſe direction. It conſiſts of a firm, coarſe, calcareous ſchiſtus, abounding with petrifactions; and, exactly oppoſite to Karani, it preſents a three-fold grotto, which may be perceived at ſome diſtance. In the central one, after deſcending an excavation in front, we met with a narrow but well-hewn entrance, having an aperture at its lower ſide for admitting light into the grotto. On paſſing this entrance, we were conducted through an arched narrow paſſage, of ſmooth and fine workmanſhip, with ſteps extending ſeveral fathoms downward into the rock, and receiving a faint light through a hole made in the next grotto on the right, but afterwards turning farther into the mountain; ſo that we could not, without lights, arrive at its extremity, which is a low

low excavated place, half filled with the foſſil diſengaged from its roof. The two collateral grottos are circular cavities, apparently formed by nature within the rock, and have a large avenue. That on the right is ſeparated from the middle anterior cavern only by a ſquare hewn pillar. They appear to have been the work of ſome hermits, who availed themſelves of the natural caves already exiſting in this place. At the foot of the very gradual declivity of ſuch eminence, we traced the remains of ancient ſtone encloſures, which probably ſerved as the boundaries of fields or gardens; and, in this place alſo, the Greek inhabitants of Karani poſſeſs arable lands. The road, leading thence to the monaſtery of St. George, croſſes a high calcareous rocky flat, incumbent on the more ancient mountain that reſembles marble in its conſiſtence. Here, as on all ſimilar ſpots of the Cherſoneſus, and likewiſe on the mountains of Balaklava, the *Aſphodelus luteus* and *Iris pumila* produced abundance of blueiſh yellow and pale yellow flowers during the month of April.

The rivulet Beyouk- or Kaſikly-Ouſehen, divides the ſtratum of cretaceous marl above mentioned from the more ſolid bed of calcareous foſſil; but immediately behind the ſtone-bridge, over which the principal road paſſes to Balaklava, this ſeparation is marked by another collateral way leading to Akhtiar. On the other hand, the road croſſing the valley from Tſhorguna to Balaklava, interſects on the right the calcareous ſtratum abounding with marine productions, from the marmoraceous and ſchiſtous mountains on the left.

Contiguous to the manor-houſe in the village of Tſhorguna, above the rivulet Ai-thodor, the higher ſtratum of cretaceous

marl which forms lofty hills, is ſupported by the more ancient calcareous rock that is not unlike marble. Towards the upper banks of the Beeyouk-Ouſehen, it occupies a greater breadth, riſes into more elevated hills exhibiting naked rocks, which are occaſionally overgrown with two ſpecies of juniper and Chriſt's thorn; thus ſerves as the foundation of all thoſe woody mountains beyond the brook, that preſent themſelves at one view, and encloſes it with a deep rugged valley which is interſected by the brook proceeding thither from the more ſouthern dale of Baidari. The lower baſe of the mountain forming rocky terraces near the village, conſiſts of the more ancient calcareous marbled ſtone, which in this place contains ſcarcely a veſtige of petrifactions; though in other parts of the Crimea it is ſparingly mixed with obliterated fragments of corallines, ſuch as moſt frequently occur in old limeſtone rocks. The foſſil here alluded to is very ſolid, generally grey, or ſhaded with yellow and red, ſometimes ſpotted like a *Breccia**, or even interſperſed with ſmall pebbles. Its grain can with difficulty be perceived, and the whole is ſimilar to a horn-flint. In ſome places it is evidently depoſited in thick and nearly horizontal layers, which are curved according to the ſhape of the mountain. At a certain height above this calcareous rock, towards the ridge of cretaceous marl already deſcribed, there is a foſſil reſembling the latter, and riſing ſo as to form conſiderable mountains, in which whole beds of white and grey pyrites lie ſcattered at various diſtances. In a few clefts, a very different, but moderate ſtratum, compoſed partly of ſandy

* *Saxum conglutinatum fragmentis lapidum.—Nemn. Polyglott.*

ſchiſtus,

ſchiſtus, and partly of coarſe ſand and other mineral congeries, appears immediately above the hard calcareous rock; and, afterwards, the cretaceous marl is accumulated into hills.

The chain of marmoraceous mountains juſt alluded to, holds a principal rank among the conſtituent parts of the more ancient mineral ſtratifications in Crim-Tartary. I ſhall therefore preſent the reader, by way of introduction to my ſubſequent journies along the ſouthern coaſt, with a general retroſpect of this very ancient alpine region, as the reſult of thoſe excurſions.

The oldeſt and moſt lofty mountains of Taurida form the ſouthern, and in a manner abrupt, border of this beautiful peninſula. They extend from Balaklava to the vicinity of Theodoſia or Kaffa, a length of nearly one hundred and fifty verſts, but are of an unequal breadth, which is moſt conſiderable in the central ſituation of the hills, and decreaſes towards the two places before mentioned. According to general appearance, they conſiſt of high ridges and creſts, nearly following the direction of the horizontal layers, being remarkably divided by broad and narrow vallies, craggy on the South ſide, which is diverſified with rocky terraces, but more gradually declining towards the northern points of the compaſs, and reſembling the more recent calcareous ſtrata already deſcribed. The whole ſeries of theſe mountains riſes likewiſe, though more perceptibly toward the South, and exhibits along the ſea-coaſt an almoſt uninterrupted chain of prodigious lofty precipices, declining in a northerly direction towards the ſteep calcareous inland rocks; and forming thoſe bleak and elevated alpine flats which the Tartars denominate *Yaila*, and preferably viſit during hot ſummers, on account of the rich paſtures they afford

afford for cattle; though ſuch tracts are covered with ſnow till the latter end of May. The hollows or rills cauſed by rain or ſnow-water on the higheſt ridge of theſe mountains, generally proceed on one ſide toward the North, or North-weſt and North-eaſt; on the other, they take a ſoutherly courſe; and, as far as I have been able to aſcertain, no where penetrate; though, in the moſt elevated points, they often come nearly in contact with each other. On account of the height from which they deſcend, and their vicinity to the ſea, thoſe laſt alluded to are uniformly of ſhort extent, but uncommonly ſteep; making deep excavations, and ſometimes uniting their currents. All the rivulets thus originating, empty themſelves directly into the ſea: hence, on this ſide of the mountains, we meet with no conſiderable ſtreams, though often with rapid torrents. On the contrary, the more open vallies and gentle brooks variouſly join together during their long winding courſe. The latter paſs through the more recent calcareous mountains into the plain country; and, by the conflux of many ſprings, they form the principal rivers of the Crimea, which diſcharge themſelves partly towards the Weſt into the Black Sea, ſuch as the Kaſikly-Ouſehen, Kabarta or Belbek, Katſha, and Alma; or, in a North-eaſterly direction, into the Sivaſh or the Sea of Azof, like the Salgir with its numerous collateral rivulets, the Koraſſu, and the Yendol. Theſe petty ſtreams, as I have already obſerved, reſemble in general only large brooks deſcending from mountains over a broad, ſtony bed; but, during floods ariſing from the accumulation of rain and ſnow water, they for a ſhort time ſwell into torrents, on account of the frequent caſcades thus occaſioned.

Concerning

Concerning the nature of theſe more ancient and lofty mountains, I cannot follow the diviſion adopted by my worthy friend Hablitzl, in his deſcription of the Crimean Peninſula. Conſiſtently with orographical principles, the whole is ſimply a very high tract of horizontal beds, deſtitute of the true grain, or the alpine part; and which contain only a few varieties of ſtratified foſſils, repeatedly diſpoſed in alternate layers. Their height and capacity are unequal, and proportionate to the different ſtrata of which they conſiſt; accordingly as theſe ſtrata have been more or leſs capable of reſiſting the influence of the atmoſphere, or the deſtructive effects of water. The moſt elevated and almoſt uninterrupted ridge is that ſituated along the ſea-coaſt from Balaklava to Aluſhta. Here it forms, by its northern inclination towards a plain, firſt the Yaila of Baidari, or Uſſundſhi; next, that of Kokos; and at length, towards Aluſhta, the Babugan-Yaila. Some detached hills, however, attain to a height ſtill ſurpaſſing ſuch alpine elevations. In the vicinity of Aluſhta, this mountainous tract is interrupted by a broad valley, in which the ſeparate and ſteep Tſhatyrdag, or Tent mount, the moſt lofty in the Crimea, riſes more diſtantly from the ſhore, between the ſource of the Alma and that of the Salgir. Toward the Eaſt of the valley lies the Yaila of Temirdſhi, which is occaſionally ſteeper than the oppoſite mountains, but ſomewhat lower; and with the latter are connected, in an almoſt continued chain, the Karabé-Yaila, and the high hills above Uſküt; which now proceed, after frequent interſections, towards Sudak, and as far as Karadagh. I have obſerved each of theſe diviſions in my ſeparate excurſions; and, on ſuch occaſions, I had at the ſame time opportunities

of

of remarking various ſections of theſe mountainous regions, for which purpoſe I preferred the croſs-roads.

High and ſteep as the mountains of the Crimea preſent themſelves at the ſea-coaſt, ſo that in ſeveral places, a few verſts only from the ſhore, they riſe to the height of one thouſand feet and upwards above the level of the Black Sea; yet, according to the obſervations of mariners, their bed or baſis is, for the moſt part, ſaid to be alike ſteep, and of a depth perhaps exceeding their height; becauſe no ground can be diſcovered by the plummet, at the diſtance of one verſt from the coaſt. The ſoft places for caſting anchor are chiefly around the promontories; but, towards the rocky bays, the whole abounds with ſhelves, by which the cable is apt to be cut and materially injured. Nevertheleſs, the coaſt of the different bays generally exhibits a narrow ſtrand conſiſting of gravel and pebbles; while the foremoſt crags and edges of the mountains, or capes, project abruptly into the ſea. The foot of the eminences, which is covered with fragments of rock and with clods, commonly riſes from the lowermoſt ſtrand ſo precipitately, that it can be aſcended only by horſes, in an oblique direction. The upper part is uſually ſurrounded with very ſteep and lofty rocks, which are in ſome parts ſeparated, and in others cloſely connected, to a conſiderable diſtance. Through a few interſections between the aggregate rocks, eſpecially in the weſtern tract of mountains, the natives are enabled to deſcend the alpine heights, and to reach the ſea-ſhore by means of a few dangerous paſſages, calculated only for travellers on horſeback.

The

The principal roads of this deſcription are between Balaklava and Aluſhta, namely:

1. From the valley of Baidări, croſſing over to Foros, as well as from Baidari itſelf.

2. From the ſame valley, by way of Skelä to Mukhalatka, down the reputed *Merduen*, or Stair; by means of which the horſes are obliged to deſcend the moſt dangerous of mountain-paths, from rock to rock, not unlike the ſteps of a ſtair-caſe; ſo that it is ſcarcely poſſible to re-aſcend them.

3. From Skelä, in the valley of Baidari, by Uſſundſhi, and what is termed the Baidar-Yaila, down the mountains impending obliquely over Leemena, by means of a ſeparate path to Simäus, or Alupka.

4. From Kokkos, up the ſteep valley along the Kabarta, proceeding to the Yaila, and in a direct line to Gaſpra, or Alupka.

5. By Manguſh, Stilä, and Uſenbaſh, directly to Alupka.

6. The road aſcending the banks of the Alma, to Avutka and Yalta.

There is another way leading up the Salgir, and which, like that laſt mentioned, may be occaſionally paſſed with *arabas* or two-wheeled carts. All the other roads in the weſtern part of the mountains, cannot by any means be rendered uſeful for carriages. On the contrary, in the quarter extending from Aluſhta to the Eaſt, where the higheſt alpine ſection becomes progreſſively more remote from the ſea, there are ſeveral coach-roads over the mountains leading to the coaſt: ſuch, for inſtance, are thoſe from Karaſſubaſar to Kapſokhor, and to Sudak; to which places very capital roads were made for the late Empreſs, as likewiſe to Koos, and from Kaffa to Otus.

In order to afford a general idea of the conſtituent parts of theſe ancient ſtratified mountains, I ſhall previouſly enumerate the foſſils of which they are moſt frequently compoſed:

1. The primitive calcareous rock already mentioned.
2. Sandy ſchiſtus.
3. Layers of clay, diſpoſed alternately with the preceding minerals.
4. *Breccia*, or pudding-ſtone, conſiſting of pebbles cemented together.
5. Several varieties of *Wacca*; and, laſtly,
6. Serpentine-ſtone, which occurs moſt rarely among theſe foſſils.

The grey and ſolid calcareous rock, generally compoſes not only the ſteepeſt and moſt lofty hills, eſpecially in the weſtern part of the mountains, but likewiſe the coronary rocks and their ſummits; while it alſo forms the greateſt part of mount Tſhatyrdag. This foſſil is not eaſily decompoſed by the effects of air and water. It ſometimes appears in prodigious maſſes and layers irregularly diſpoſed, ſometimes under the form of oblique ſquares, or divided into regular parallel ſtrata of various thickneſs. In ſome places it is grey, of a very fine grain, marked with fiſſures of an ochreous or reddiſh tint, frequently interſected with ſpathoſe veins, and may occaſionally be wrought like marble; but, in other ſituations, it is a genuine *Dyſodes*, or fetid ſtone, which partly has the ſame marmoraceous texture, partly breaks of a blackiſh colour, and is of a more earthy or laminated nature than the former. Very few perceptible traces of petrifactions can be diſcovered in it; and theſe moſtly conſiſt of corallines completely changed. Though ſuch rock is very hard,

hard, it abounds in fiſſures; and, where it is expoſed on the ſurface, as is the caſe in numerous hills, it is gradually reduced by the combined action of air and froſt to a coarſe gravel, and at length produces a yellow marl, in which alpine plants thrive luxuriantly. Towards the declivities, the ſtrata of this foſſil are often diſpoſed in a direction nearly horizontal; and ſometimes, particularly near Tſhorguna, and in ſeveral other places, they evidently bend, or preſent an undulated appearance, according to the ſhape of the eminences and mountains compoſed of the ſame material. Even at a diſtance, an experienced eye may with tolerable exactneſs diſtinguiſh the heights conſiſting of this ſpecies of limeſtone, which is by the Tartars denominated *Kürük-Taſh*, or the Blue Rock. (See the ſixth vignette, and the ſixteenth plate.) It is ſcarcely ever obſerved in thin layers between ſchiſtous minerals; but its thick ſtrata always form large naked rocky hills, of an obtuſe figure. They are in general moſt lofty towards the South, where they terminate in precipices; and, if ſuch rocks exhibit ſtratifications, theſe uniformly occur towards the North or North-weſt, under an inclination approaching to that of an angle of forty-five degrees. An idea of their ſtructure may be formed, by inſpecting the eighth and ſixteenth plates, but eſpecially from the ſixth vignette. I have already obſerved, that the more recent horizontal bed of limeſtone is incumbent on this rock, either immediately, or with interpoſed layers of free-ſtone, in the ſame manner as it is depoſited on the more ancient ſtrata.

The calcareous rock above deſcribed is the moſt general ſpecies of ſtone conſtituting the higher mountains of Taurida; and it ſometimes alſo occurs under the form of *Wacca*, which

is again compoſed of gritty fragments, cauſed by the deſtructive effects of paſt ages. The horizontal beds of clay are the next mineral, which likewiſe contributes a large ſhare towards the formation of the more ancient hills. The main tract of all the ſtratified heights lies on one ſide between Eaſt and South-eaſt, and on the other, between North-weſt and Weſt; a direction which occaſions a great variety of angles, with reſpect to the ſhore. Thus it happens, that a ſection of ſuch ſtrata preſents itſelf along the coaſt, and that their profiles appear moſt diſtinctly in the clefts produced by torrents. In the eaſtern part of the mountains, they are almoſt uniformly impregnated with Epſom-ſalt, but ſeldom in that towards the Weſt. Their principal conſtituent is a grey, or blackiſh, poor, argillaceous ſchiſtus, acquiring various degrees of hardneſs; though eaſily reduced by moiſture into ſmall ſcales, or diminutive angular fragments, and not efferveſcing with acids. Its beds being from a few inches to ſeveral feet, and even fathoms in thickneſs, are generally interſperſed with thin plates and layers of a more or leſs calcareous ſandy ſchiſtus of different ſhades, ſuch as grey, yellow, ruſt-coloured, and ferruginous, or even blackiſh; and which frequently extend in a parallel line to a conſiderable breadth. Theſe ſchiſtous ſtrata are alternately diſpoſed with thoſe of clay, at irregular diſtances. Their thickneſs is from one quarter of an inch, or leſs, to the bulk of ſeveral feet. Their courſe and inclination towards the horizon reſemble thoſe of the calcareous beds; but they very ſeldom occur ſtanding on the edge, nor do they ever appear in ſuch a perpendicular poſition as thoſe laſt mentioned. Among the harder layers of ſchiſtus, which are interpoſed between crumbling clay, there is found

found a black ſlate, occaſionally mixed with ſand, and producing little or no efferveſcence with acids. It frequently admits of being ſplit into thin lamina, and is ſometimes obtained in very large plates, which the Tartars employ for covering their huts. In the eaſtern mountains, an uncommonly hard free-ſtone is frequently met with; its grain is ſcarcely diſcernible. The ſtone lying there is burſt into very extenſive plates, or ſquare columns, when it approaches the perpendicular ſituation: farther, it eaſily ſeparates on expoſing it to heat; is of a ferruginous complexion; and is blended with diminutive grains of mica. This foſſil, alternating with ſofter layers of the ſame ſpecies, is very often depoſited in beds of ſuch capacity, that it affords an uſeful free-ſtone for building. Its hard part is in many places thinly covered with minute tranſparent quartzoſe cryſtals, and alſo contains occaſionally ſmall veins of regular rock-cryſtal. With this free-ſtone may likewiſe be claſſed thoſe ſtrata of ſandy ſiliceous mill-ſtones, cemented together by means of quartzoſe grains; which conſtitute whole mountains, and occur in the vicinity of Stilä and Sudak. In ſome parts, ſuch layers of argillaceous ſchiſtus are of a marly conſiſtence, and ſtrongly efferveſce with acids; in which caſe they abound with fiſſures of calcareous ſpar, though more rarely with radiated cryſtals. In a few places, they poſſeſs the ſolidity of the ſchiſtus occurring in mines; in others again, they are remarkably ferruginous, and are then likewiſe productive of regular hæmatites, which ſometimes appear in veins, and ſometimes in whole beds, ſo that they may with advantage be uſed in ſmelting. The colour of this iron ore is either reddiſh, brown, or grey; its texture, porous and ſcaly, or cloſe,

close, heavy, and argillaceous. No traces of other metals, however, have hitherto been discovered in the Crimea.—Those mountains, which consist exclusively of stratified clay, may in general be distinguished at a distance, by their external appearance; as they not only decline more gradually, but are likewise marked with numerous furrows made by torrents; and all the gutters for conducting the water down the southern coast, are excavated in such layers. I shall endeavour to shew, in the particular description of some districts, what influence these beds of clay have already had, and are still likely to produce, on the derangement and demolition of the Crimean mountains in various situations; because the former occupy considerable spaces between the solid horizontal strata, being continually acted upon and undermined by subterraneous springs. The more compact beds of free-stone, in such mountains as principally consisted of soft beds, have remained standing like crests or walls; and thus we see hills formed of calcareous rock, and other firm bodies projecting above them in bulky masses.

Another very common species of fossil, in the Crimean heights, is the *Breccia* or Pudding-stone, which always occurs in very thick layers, and forms whole mountains. When in a solid state, it projects over the softer eminences in the form of crested rocks and precipices, as is distinctly represented in the fifteenth plate. The solid, as well as the soft parts, serving to connect this mineral, vary according to different situations, and even in the same stratum. In some places, the small globular stones and gravel are combined with a grey petrified clay; in others, with a fine marl or chalk, or with clay and siliceous matter; very frequently also with ferruginous brown-red clay, which

which is either in a compact ſtate, or ſo looſe, that the ſtone may be broken by the hand; when it is likewiſe decompoſed by the air, crumbling to pieces, and affording to the hills and vallies of ſuch regions a ſurface, conſiſting entirely of ſmall pebbles. The congeries of foſſils in theſe cemented ſtones are generally ſmall, moſt of them not being larger than a walnut or an egg; and theſe are ſparingly mixed with a more or leſs coarſe ſand. There are however layers, containing globular ſtones of the ſize of cannon-balls, or as large as bombs, amounting to ſeveral hundred weight; and in which all the ingredients are of a coarſer nature. The conſtituent parts of this aggregate correſpond, on the whole, with the hard ſpecies of mineral forming the mountains of Crim-Tartary. They are occaſionally compoſed of calcareous rock, of free-ſtone, of argillaceous ſchiſtus, and of quartz; but ſeldom of a ſhirly wacca. In no inſtance have I been able to diſcover any veſtiges of granite; becauſe this ſpecies of rock is never found among the globular ſtones on the coaſt of the Crimea.

Laſtly, there occur a few other kinds of rock, though leſs frequently than thoſe above ſpecified, particularly about the middle of the mountainous tract which extends along the ſhore: for inſtance, wacca interſperſed with ſhirl; a mixed ſpecies of rock reſembling granitell, and compoſed of lime and *Talcum corneum;* the ſerpentine ſtone, or *Ophites*, and ſimilar foſſils. On theſe I cannot here expatiate; as they will be mentioned in their reſpective places. It deſerves, however, to be remarked, that all ſuch minerals follow the ſame direction and declination in their layers, and conſequently belong to the ſame claſs of horizontal ſtratifications as thoſe already deſcribed.

Having

Having now given a general introductory view of the Crimean peninſula, I ſhall relate the obſervations made during my travels into the more elevated mountains of that country. I ought, however, previouſly to communicate the promiſed deſcription of Mankup, an ancient Genoeſe city, which appears to have been the laſt aſylum of the Ligurians, after they were driven from the coaſt. Thus, I ſhall be enabled to follow a regular plan in the ſubſequent narrative, and at the ſame time have an opportunity of ſtating here a few particulars reſpecting other objects, which excited my attention in this vicinity.

The rock ſupporting Fort Mankup can be aſcended only by two paths. One of them is made thither from the vale watered by the brook Ai-thodor, along which the diſtance to Shulü does

does not exceed five or ſix verſts; and the road leads over the extenſive, level, and beautiful meadows, called by the Tartars *Philegus*, and by the Greeks *Pelagos*. This valley, in former times, probably was an inland lake: for it is completely ſurrounded by lofty mountains of cretaceous marl and limeſtone; uniting at the parts where the brook Ai-thodor enters and again leaves ſuch meadow; forming in a manner rocky gates through which the accumulated water has apparently penetrated. Farther, the valley of the Ai-thodor for the moſt part ſeparates the later horizontal bed of limeſtone, as well as the hills of cretaceous marl, from the more ancient ſtratified mountains ſituated on its left ſide. A few parcels of the former only occur on the ſame ſide of the rivulet towards the South, and appear as if they had been ſlidden over the older ſtrata.

The way leading from the valley of the Ai-thodor to Mankup, is paſſable by Tartar arabas; and I have at various times availed myſelf both of this, and of the other road which proceeds upwards from the village of Kara-Ilas, over the tranſverſe dale, along the weſtern ſide of the rock. The latter can, however, be purſued only by travellers on foot, or on horſeback; for it paſſes along the orchards of the villages Youkharé, or the Upper Kara-Ilas, and Bugas-Sala; which laſt mentioned place is rather conſpicuouſly ſituated on the declivity of the hill ſupporting the rock of Mankup; and is eight verſts diſtant from the Lower Kara-Ilas. After riding through a narrow rocky glen overgrown with wood, and climbing with our horſes over ſteep paths, that frequently reſemble flights of ſteps, we aſcended the lofty promontory, which from almoſt every quarter preſents craggy ſides and precipices. On attaining

ſomewhat more than two thirds of the whole eminence, we met with conſiderable remains of a ſtrong and high wall cemented with lime; extending over the acceſſible part of the glen, as far as the ſteep declivity of the latter; and being erected partly of hewn, partly of rough ſtones. Near the path, it was probably furniſhed with a gate; but this, together with a portion of the wall itſelf, has been demoliſhed. A very ancient Jewiſh cemetery, with many bicornous tomb-ſtones, appear at a ſhort diſtance upward, where the dale abruptly declines; and hence it is evident, that the city of Mankup was alſo inhabited by Jews.—We arrived at the firſt wall of the town in the upper marſhy part of the glen, whence a ſpring iſſues, and occaſions the humidity of the ſoil. To the left we noticed a ſpacious grotto with a regular door, and in its vicinity ſome open ciſterns hewn in lime-ſtone. Theſe are frequented during the ſummer by the Jewiſh curriers of Dſhufut-Kalé, who dreſs the hides brought thither with the tan extracted from the *Rhus Coriaria* and *Cotinus*, that grow abundantly on the riſing ground; and the water afforded by this place, is likewiſe better adapted to ſuch purpoſe. The wall, which is here provided with a round tower for the protection of the entrance and of the ſpring, extends beyond the valley along the leſs craggy declivities; preſents angles made for its defence at moderate diſtances; is ſomewhat more than an arſhine in thickneſs; not quite two fathoms high; and, being cemented with lime, it is moſtly in an entire ſtate, though ſome parts of it are more or leſs broken off. A few hundred paces farther, in an eaſterly direction, there is a gate at which we arrived from the deep valley of the Ai-thodor, by the very difficult road

road above mentioned; our carriages being drawn by ſteady oxen. Near this gate, we met with an encloſed wall; and in its vicinity, beneath a level rock, with a grotto, that now ſerves as a reſting place for cattle. Above ſuch fountain, we noticed a Tartar inſcription on ſtone, pointing out the year 953 of the Hegira. The upper ſurface of the rock, being rather hilly, is defended on its ſteep ſide by the wall before alluded to; but, in all other directions, by craggy and terrific rocky precipices of uncommon height. It is covered with a fine green turf, on which buſhes and degenerate fruit-trees are thinly ſcattered. Beſide a ſmall ſynagogue, and a few houſes that were formerly inhabited by Jewiſh tanners, the platform of this rock exhibits only the ruins of dwellings, and two relics of Chriſtian chapels. In a niche directed towards the Eaſt, and belonging to one of the latter, we diſcovered the images of Saints painted on the wall; and, in another, the picture of the Virgin Mary could be particularly diſtinguiſhed with tolerable accuracy. Contiguous to the inner fort, there is a metſhet, or Tartar houſe of prayer, which is in a better ſtate of preſervation. This interior fortification conſiſts of a very ſtrong and high wall drawn tranſverſely, ſo as to interſect the narrow promontory which the mountain forms towards the Eaſt, beyond the valley of the Ai-thodor; and alſo, of a ſquare caſtle two ſtories high, being ſituated cloſe to the wall. The firſt floor has only holes for ſmall fire-arms; but the upper ſtory, which is now in a ruinous ſtate, appears to have been provided with embraſures for diſcharging cannon-ball. From the ſummit of this cape, we enjoyed a moſt delightful proſpect over the ſurrounding vallies and the Cherſoneſus, extending on one ſide

to the Black Sea, and on the other to the mountains as far as the Yaila of Uſſundſhi. We alſo found here a few pear-trees and ſhrubs in detached ſituations. At the declivity of the eminence, eſpecially on the South ſide above the valley of the Ai-thodor, we met with ſeveral grottos excavated within the rock; but the moſt remarkable caverns occur in the fartheſt eaſtern angle of this promontory. Here various ſhallow baſons and gutters, for collecting rain water, are hewn in the level part of the cape; and, at its northern extremity, a flight of very dangerous ſteps is cut out, by which a perſon may deſcend into a very ſpacious hall, about twenty-one feet long, and ſixteen feet and a half broad, hollowed out of the ſolid foſſil; and the roof of which is ſupported only by a ſquare pillar. On its eaſtern ſide are two, and toward the South three, cloſets with regular entrances. Two paſſages in the weſtern quarter lead to a collateral apartment, which is likewiſe twenty-one feet in length, but ſcarcely fourteen in breadth; having in the back ground a broad terrace of ſtone, not unlike a divan; and being ſeparated from the main room by a wall of the entire rock, that is yet ſtanding. From this apartment, another door on the North ſide leads to a terrace, whence the deep glen of Kara-Ilas may be ſurveyed; and to which a ſtair-caſe hewn in the rock conducts from without; but, being totally unguarded along the precipice, it is ſtill more dangerous to aſcend than the flight of ſteps before mentioned. On the ſouthern ſide, there is another open terrace, at which we arrived after deſcending a few ſteps. It contains a ciſtern covered by the projecting rock; and near it is a ſpacious grotto excavated in the mineral, together with a ſmaller ſtair-caſe,

caſe, by which we again reached the level top of the mountain.

From the preceding deſcription it is evident, that the city of Mankup is not of very remote origin; and it is the more ſurprizing that we are ſo little acquainted with its hiſtory, or its viciſſitudes. Shortly before the Crimea was incorporated with the Ruſſian empire, it is ſaid to have been inhabited both by Tartars and Jews. At preſent, or ſince the year 1800, even the latter have abandoned their dwellings, and the town is now completely deſerted.

As I have above alluded to the village of Kara-Ilas, I am induced to communicate a few particulars relative to its ſituation and charming environs; ſo that no remarkable objects in its vicinity may elude my attention.

This handſome and populous village is divided into the upper and lower part. It belonged to Mekhmet Aga, who was treaſurer to the laſt Khan of the Crimea, and was ſubſequently nominated Counſellor of State in Ruſſia, but who is lately deceaſed. Its ſite extends as far as the ſteep valley, which leads to Mankup and the villages on the banks of the Ai-thodor. Lower Kara-Ilas lies along a natural wall formed by rocks, with which the lofty ſtrata of calcareous marl, that are apparently broken off in the valley before mentioned, again riſe along the brook Souk-tſheſme*, as well as on the ſide of the Belbek, to a conſiderable diſtance; forming here

* *Souk-tſheſme* literally ſignifies the Cold Spring.

a high

a high rocky precipice, and on its top exhibiting ten projecting round towers, not unlike thoſe of an ancient fortreſs. In an eaſtern direction towards the Belbek, the country is more open, there being only detached rocks remote from each other, and ſome of them preſenting whimſical figures. The large aſſemblage of rocks riſe from two to three hundred feet above the current of the rivulet. Four prodigious blocks appear to have been ſeparated from them, and have tumbled down into the valley, very near the manor-houſe; where they now remain fixed in the confuſed fragments conſtituting their baſis. It is probable that two of ſuch maſſes lying neareſt to the building, conſiſted of one ſolid piece, before they were divided through a cleft. Their length exceeds nine fathoms, and they are from three to four fathoms thick, being compoſed throughout of a pretty firm cretaceous marl, interſperſed with helicites. The evident ſtate of decay prevailing in theſe calcareous mountains; the divided rocks fronting the eminences; and the whole ſituation, render it probable that the river Belbek anciently flowed through the valley of Kara-Ilas, which is at preſent watered only by the ſmall ſtream of the Souk: and, though the former now runs at a conſiderable diſtance from this place, yet its current is ſo powerful and rapid, that it may in paſt ages have thus penetrated and diſſevered the heights above mentioned. It is impoſſible to ſurmiſe what changes in the vallies, and transformations of hills, may have been cauſed by a river that collects its waters from the lofty and rent mountains of the whole country through which it paſſes, eſpecially by frequent variations of its courſe. Farther, as large fragments of rock are, in the Crimea, often precipitated from mountains undermined by

by water, it may alſo happen that ſuch maſſes fill up the bed of a river in a narrow dale, and thus compel it to take a different direction. Indeed, the valley through which the brook Ai-thodor now flows, and which extends to the banks of the Belbek, as far as the environs of Fotuſala, appears formerly to have ſerved as an outlet to a larger ſtream; and many of the excavated and encloſed vallies may at firſt have formed lakes, till the accumulated water opened itſelf a way, by burſting through part of their banks. Let it, however, ſuffice to have mentioned theſe conjectures, which in my opinion are far from being groundleſs.—The manor-houſe erected at Kara-Ilas, is one of the moſt handſome in all Taurida, not only with reſpect to its very romantic ſituation, but likewiſe for conveniency, and on account of the excellent gardens in its vicinity. It conſiſts of a manſion appropriated to viſitors; a Harem encloſed with high walls, near which are a ſeparate ſmall garden and a bath; farther, of a more ancient dwelling built on higher ground; laſtly, of a very reſpectable metſhet erected in a ſtill more elevated ſituation; and, adjoining to this, we obſerved the family-tombs. Beſides, there is a mill turned by the water of a canal paſſing by the houſe at the declivity of the mountain, and the current of which is confined by dikes of maſonry-work. The gardens below the buildings, and the Lombardy poplars planted on the banks of the brook, greatly contribute to this beautiful ſcenery; while all the low ground, extending along the village to one verſt and a half, is a continued ſeries of gardens and meadows. The diſtance from Tſhorguna to Kara-Ilas, through the vallies of the Ai-thodor and of Mankup, does not exceed fifteen verſts.

In

In order to inſtitute a minute examination of the more ancient mountains, I propoſe firſt to ſurvey the hills occurring in the environs of the harbour of Balaklava, as forming the commencement of theſe eminences in the weſtern quarter. By the ſhorteſt road of travelling, Tſhorguna is only ſix verſts diſtant from Balaklava. The valley dividing the latter from the older mineral ſtrata, extends as far as the Greek village Kadi-koi, which is ſituated two verſts on this ſide of Balaklava, and very near the extremity of the haven. Steep and naked rocks encloſe the port on both ſides, and contract its entrance by ſea, not unlike a gate. They conſiſt entirely of the marmoraceous limeſtone rock that begins near Tſhorguna, and are ſimilar to thoſe ſurrounding the deep valley in which the Greek village of Karani lies, in a more weſtern direction. This hard calcareous mineral has no regular diviſion, but preſents rough clefts pervaded by a reddiſh clay. In ſome places, it reſembles a red and white breccia, the ſtony fragments of which are white, and the cementing matter is red; the whole admitting of a poliſh like marble. In other ſituations, ſuch limeſtone rock is, in the ſame manner as that of Tſhorguna, diſpoſed in thick curved ſtrata; in which we occaſionally noticed ſingle entrochites, or almoſt obliterated traces of milleporites. Farther, ſuch foſſil affords by burning a much ſuperior lime to that obtained from the more recent ſtrata. It projects into the ſea, exhibiting various obtuſe capes and dreadful precipices, two of which form the mouth of the harbour; while the weſtern promontory is the Aya-Burun above deſcribed, near the monaſtery of St. George. In the vicinity of the latter, the marmoraceous limeſtone rock ſuddenly declines, as if making a ſtep;

a ſtep; and the more recent white calcareous ſtratum, being full of diſcernible petrifactions and alternate thick layers of oolites, is in a manner ſlidden over, and covers it. Towards the neck of land, however, the brown ſchiſtus appears beneath the bed of limeſtone, and ſinks progreſſively lower in a weſterly direction, till it is at length completely immerſed in the ſea, at a ſhort diſtance from the ruptured iſthmus; which I am inclined to denominate the Cape of Iphigenia. Nevertheleſs, a layer of free-ſtone, with fine quartzoſe pebbles reſembling pearls, and evidently formed according to the inequalities of the ſchiſtus, here likewiſe occurs in a few detached places, eſpecially to the Eaſt of the land's point before alluded to, being depoſited near the recent ſtrata of limeſtone. At the divided part of the iſthmus itſelf, we again met with fragments of the foſſil laſt mentioned, lying immediately above the ſchiſtus, and having the ſame declination as the latter towards the North-weſt.

The ancient fortreſs of Balaklava was probably erected by the Greeks, and ſubſequently repaired by the Genoeſe; though it is now in a ruinous and deſerted condition. The hill on which it lies towards the eaſtern quarter of the harbour's mouth, is interſected on the ſame ſide by a valley. Here it preſents a ſoft pudding-ſtone that eaſily crumbles to pieces; being a congeries of a great variety of calcareous and quartzoſe particles mixed with gravel, ſo as to form a real, but not completely petrified marine ſoil. None of thoſe rolled baſaltic fragments, which lie along the ſea-coaſt, and are mingled with ſmall columns of ſhirl, are diſcoverable in this kind of breccia; nor have I met with the baſaltes here in its natural ſituation, though a few ſpecimens recently broken are occaſionally found

on ſhore near the harbour. Should this mineral, however, really occur in its uſual poſition at the remoteſt part of the promontory, it muſt ſtill be conſidered only as a baſaltic wacca; of which ſeveral ſtrata appear at ſome diſtance on the coaſt, but by no means as a lava or volcanic production; for I have not been able to trace any diſtinct veſtiges of the latter, in all the mountains of Crim-Tartary. The whole ridge, extending from the hill of Mankup along the coaſt, as well as the deep glen which ſeparates it from the next mountain to the Eaſt, conſiſts of the coarſe breccia before deſcribed. In the humid dale intervening between the former hill and the modern Greek town built in the vicinity of the harbour, we perceived thick layers of this foſſil in a direction not exactly due Eaſt and Weſt, but evidently adjoining the mountains of marmoraceous limeſtone. Towards the latter, the mineral maſs is of a ſofter and more earthy conſiſtence; but in the lofty eaſtern mount, which is entirely compoſed of ſuch material, it is as hard as pudding-ſtone, and contains a coarſer congeries of white and ferruginous quartz, ſeldom exceeding three or four inches in diameter; alſo fragments of a black and a red argillaceous ſchiſtus, partly in a ſolid, and partly in an earthy ſtate; laſtly, the marbled limeſtone itſelf. On the rocky declivity of the hill ſituated to the Weſt of the harbour, there occur veins of calcareous ſpar which break ſometimes in a priſmatic, at others in a rhomboidal form; and, immediately towards the main land, the new ſtratum of marly limeſtone is evidently incumbent on the calcareous rock.

The town of Balaklava has probably received its modern name from the ſtrong Greek caſtle of *Pallakium*. It was formerly inhabited by Tartars; but, as moſt of the natives emigrated,

emigrated, or were diſperſed, when the Crimea was occupied by the Ruſſians, this town, together with the ſurrounding country extending to the banks of the Beeyouk-Ouſehen, including the villages of Kadikoi, Karani, Kamara, and Alſſu, (after removing the reſt of the Tartar families to other places,) were granted as ſettlements to a regiment of Albanians, now reduced to one battalion. Thus Balaklava has been completely changed into a Greek town, of which the ninth plate will afford a perſpective view, being faithfully drawn from the oppoſite weſtern extremity of the harbour; but the ordinary dreſs of the Arnautes reſiding there, and of their women, is repreſented in the tenth plate. This regiment is not incorporated with thoſe of the line: it was raiſed chiefly of Greeks, who had been in the Ruſſian ſervice in the Archipelago. For their ſupport, the Imperial Court not only granted the territory above mentioned, but likewiſe allowed them pay and proviſions, for which purpoſe the ſum of ſeventy-two thouſand rubles was aſſigned by the treaſury. During peace, however, they ſeldom perform duty; becauſe a ſmall number only is required to be on guard, or as patroles againſt occaſional depredations; and at preſent they are alſo obliged to form piquets for the ſecurity of the ſouthern coaſt. Few of theſe fencibles cultivate either vineyards or fields; and ſtill fewer employ themſelves in fiſhing, for which they have excellent opportunities. Their principal occupation is that of keeping petty ſhops in the towns of Crim-Tartary, where they are diſperſed throughout the country; as leave of abſence is readily obtained. The number of officers who rank with thoſe of the army, and of the non-commiſſioned officers, is nearly equal to that of the privates.

The town of Balaklava is ſituated cloſe to the harbour, along the foot of the mountain, but it is not provided with good water. As the port is deep, ſheltered by lofty mountains, and contracted towards the ſea, its waters are in general as calm as thoſe of a pond, ſo that fiſhing in them is very ſeldom interrupted. Such port is frequented by fiſh of paſſage, eſpecially by mackarels, and the *Mugil Cephalus* in great numbers; farther, by the red ſea-mullet, or *Mullus barbatus*, which is one of the moſt delicate fiſh caught in the lakes of this country, whether it be eaten in a freſh or pickled ſtate. Mackarels alſo become as tender and ſavoury as herrings, after being kept twelve months in brine.—The length of the harbour does not exceed one verſt and a half, and its breadth is about two hundred fathoms. The entrance is very deep; yet, being confined within high rocks, its channel ſcarcely admits two veſſels to ſail abreaſt. Notwithſtanding the apparent danger in entering this port, it afforded a ſalutary refuge to ſuch veſſels as were driven by ſtorms againſt the Crimean peninſula, without being able to double the Cape of the Cherſoneſus. As, however, ſmuggling could not be eaſily prevented on account of the confined ſituation of the harbour, Government was at length induced, in the year 1796, to prohibit all ſhips whatever from entering it; becauſe the mercenary Greeks readily encouraged illicit traffic, ſo as continually to expoſe this neighbourhood to infection from the plague:—in conſequence of ſuch excluſion ſeveral ſhipwrecks have already been occaſioned. A ſmall rivulet, proceeding from Kamara, and another brook ariſing from the weſtern mountains, diſcharge themſelves into the extremity of the haven.

The

The old fortreſs, like all the ſtrong places of the Genoeſe and Greeks in this peninſula, is erected on inacceſſible rocks, cloſe to the mouth of the harbour, on the adjoining eaſtern hill. It is fortified with high walls and towers. The perſpective view, given in the ninth plate, will afford a more correct idea of its ſituation than could be derived from a detailed deſcription. On the continued ridge of the mount, I met with a handſome but diminutive *Ornithogalum*, which has not occurred to me in any other ſituation.

My next route was directed along the ſouthern coaſt of the Crimea, towards Kamara; becauſe the road leading over the mountains contiguous to the ſea, between Balaklava and the neareſt maritime village adjoining to Foros, cannot be eaſily frequented. I commenced this journey on horſeback, on the fourth of April; when the peach, almond, apricot, and plum-trees were flowering in the gardens; while, in the woods, the *Prunus ſpinoſa*, *Berberis vulgaris*, and the *Lantana*, only began to ſhow their bloſſoms. Among the herbs, I noticed the following: *Adonis vernalis* and *apennina*, *Fumaria*, *Alyſſum montanum*, *Ornithogalum piloſum*, *Aſphodelus luteus*, *Aſtragalus teſticulatus*, *Clypeola Jonthlaſpi*, *Geranium cicutarium*, *Taraxacum*, and ſome *Euphorbiæ*.

The diſtance from Tſhorguna to Kamara is computed to be four verſts, over calcareous heights; and the buſhy hill on which the latter place is ſituated, together with a Greek church, conſiſts of alternate beds of flag and limeſtone. After croſſing the mountain, and travelling along the dale of Alſſu, we

arrived at a low ground, between the eminences in the vicinity of the coaſt, whence we had an open proſpect over the ſea. On this ſpot, a tent was erected for the Empreſs when ſhe viſited the valley of Baidari, that ſeparates the hills bordering on Balaklava and conſiſting of pudding-ſtone, from the next following mount compoſed of old grey calcareous rock, on which is again incumbent a foſſil ſimilar to the former. The rocky mountains, both from Balaklava to this valley, and thence to the village of Laſpi, form throughout a lofty and craggy ſea-ſhore. We here met with primroſes of every colour, though more rarely of a red hue; and, on entering the dale of Baidari, numbers of the *Alyſſum clypeatum*, and a beautifully flowering *Orobus*, preſented themſelves at the ſides of the road, which has been cut through the rocks with uncommon labour, but is at preſent in a very indifferent ſtate. The *Alyſſum montanum*, *Euphorbia Sylveſtris*, and *Iris pumila*, were abundantly in bloſſom; but the *Aſphodelus luteus* had not yet opened its buds. The hill laſt alluded to, is again parted from the high rugged promontory of *Ayadagh*, by an intervening deep valley, extending towards the ſea. This cape projects with dreadful precipices, and has received the name of Sacred Mount,—probably from a Greek convent formerly erected on its ſummit, and the ruins of which are ſtill diſcoverable. This morning being rainy, foggy clouds excluſively enveloped the top of ſuch promontory; a circumſtance which again ſuggeſted the remark, that calcareous mountains have the ſtrongeſt attraction for vapours and miſts. In the vicinity of this cape, violent tempeſts are ſaid to prevail at ſea, in all ſeaſons of the year.

On

On ſurmounting the hill above mentioned, we enjoyed the proſpect of the beautiful and romantic vallies of Varnutka and Kutſhuk-Miſkomia. They repreſent as it were the veſtibule of the more extenſive plain of Baidari; being ſeparated from the latter only by a narrow ridge, which, proceeding from the aſſemblage of rocks along the coaſt, not unlike a regular wall, terminates towards North-eaſt. Our wretched horſes could ſcarcely climb up this rocky eminence, on which the road is uncommonly bad and difficult. At length, after paſſing through continued woods, we arrived towards evening in the village of Baidari, from which the whole dale has obtained its name.

This pleaſant valley was formerly granted to Prince Potemkin, and has been greatly praiſed by all travellers, eſpecially by Lady Craven, the preſent Margravine of Anſpach. It preſents, indeed, many charms to perſons who have not viſited Siberia. I muſt confeſs, it did not produce a ſimilar effect upon me, who was accuſtomed to ſurvey in that country landſcapes and proſpects of a more extenſive and majeſtic nature; nay, even the vales of Caucaſus far ſurpaſs this celebrated ſpot. It is, however, more remarkable on account of its ſingular ſituation; being an extenſive, oblong and hollow valley, upwards of ſixteen verſts in length from South-weſt to North-eaſt, and from eight to ten verſts in breadth. On its ſouthern ſide, it is bounded by the woody alpine terrace of the rocky wall proceeding along the ſea-coaſt; towards the Eaſt, by the ſteep border of the Yaila of Uſſundſhi, which here preſents the lofty mount Tolaka, and likewiſe by a few other ridges conſiſting of rock; on its northern ſide, by ſimilar ridges and eminences,

that

that ſeparate it from the dale watered by the brook Uſenbaſh, as well as from the woody mountains of Kokulos and Aithodor; laſtly, on the weſtern ſide, by the above-mentioned ridge towards Varnutka. The central part of this large valley is hilly, and well provided with wood: from its hollow grounds, the ſprings, brooks and ditches collect their waters into the Kaſikly-Ouſehen; which, by means of a narrow valley in the vicinity of Tſhorguna, opens itſelf a paſſage towards the North-weſt, where the mountains are more diſſevered, and leſs elevated. Beſide the detached villages of Varnutka and Kutſhuk-Miſkomia, the dale alſo contains thoſe of Kaitoo, Baidar, Safftik, Kalendé, Beeyouk-Miſkomia, Tylü, Uirkuſta, Baga, Uſſundſhi, Savatka, and Skelä; which are collectively inhabited by at leaſt ſeven hundred families of turbulent Tartars. Luxuriant woods, conſiſting throughout of umbrageous trees, cover this extenſive tract, excepting in ſuch open parts as have been converted into arable land. Excellent oak-trees ſtill occur here; though, during the late war with the Turks, the beſt timber for ſhip-building was carried off, in order to ſupply the Ruſſian fleet ſtationed in the Black Sea. The walnut-tree likewiſe proſpers uncommonly in this, as well as in the vale of Shulü, and in all the ſouthern vallies environed by mountains, where the oldeſt and moſt bulky of theſe trees are to be met with. In the village of Uirkuſta, there is one particularly celebrated: it ſtands in a garden, is of prodigious extent, and has in ſome ſeaſons been productive of from eighty to one hundred thouſand walnuts. I alſo poſſeſs a ſimilar tree of conſiderable ſize in one of my gardens at Shulü. On the whole, their dimenſions can be compared only

only with thoſe of the noble oak; and the largeſt of the latter, in the whole Crimea, is probably the tree ſtanding in the park of Admiral de Ribas, on the banks of the Belbek, near the village of Beeyouk-Syürehen *.

On the fifth of April, I departed from the valley of Baidari, in order to proceed over the lofty ridge of mountains towards the ſea-coaſt. We rode in a ſoutherly direction between a hilly tract connected with mount Tſhuka and mount Sinor, aſcending the eminence, which is thinly covered with wood. No other foſſil occurred here, excepting the marmoraceous limeſtone in detached, irregular layers, which are pervaded with clefts. Although the morning was charming, and the atmoſphere about the hills apparently ſerene, yet flakes of ſnow fell around us, on the top of the mountain over which we travelled. From an inconſiderable elevation of the rocks towards the North, the whole valley could at once be ſurveyed. In front, however, we were ſurprized with a terrific view of the open ſea, beneath extraordinary rocky precipices, upwards of one hundred fathoms high; and which form the continuation of thoſe mountains along the ſea-coaſt, commencing from the village of *Laſpi* †. A dangerous winding path leads down the

* The trunk of this oak is, at the root, where it happens to be ſomewhat decayed, twenty-five feet three inches Engliſh meaſure in circumference; and, at about ſix feet above ground, where it is in a healthy ſtate, not leſs than thirty feet. The height of the ſtem to the firſt branch is eleven feet eight inches; and its ſhade, at noon, ſpreads around a circle of one hundred paces.

† Laſpi is a modern Greek term, implying dirt, or a moraſs. Moſt of the Tartar villages, ſituated along the ſouthern coaſt, ſtill retain their Grecian names; having in former times been chiefly inhabited by Greek families.

ſteep woody declivity, from which a collateral road is made through a rocky hollow ground on the right, proceeding to the village of Phoros, which ſignifies a market. The horſes bred in the environs of Baidari, and other mountainous countries, are ſo accuſtomed to ſteep rocky paths, that a perſon may implicitly truſt to their ſagacity, and their bridle may be ſlackened in the moſt hazardous ſituations. Even pack-horſes, that generally precede, require no guide or leader, and never miſtake the abrupt and difficult turnings from one precipice to another; ſo that they are not eaſily diverted from their uſual ſteady courſe.

About half-way up this eminence, where it forms a kind of terrace, I diſcovered a change of ſandy ſchiſtus; and, lower down, ferruginous layers towards the village of Pſhatka, to which our route was directed. In the paſture grounds of ſuch foſſils, the goats had left no other plants but the large *Euphorbia myrſinites*, that uſually flowers in the month of March, and often produces more than twenty luxuriant ſtalks between the rocks.

Near the Tartar village of Pſhatka, or Mſhatka, there appeared ſtrata of a ſpotted ſandy ſchiſtus, or a ſpecies of wacca not unlike porphyry. Below this place, or on the declivity towards the ſea, we met with fine orchards, which are watered by a ſpring riſing, and encloſed, in the village. A large rough *Ranunculus*, and tall primroſes, both contributed to diverſify the verdure; and I alſo noticed an early-flowering *Siſymbrium*, that greatly reſembles the *Alliaria*, but is deſtitute of ſmell. Several olive-trees, formerly planted by the Greeks, are ſtill thriving here, and are well adapted to this climate.

After

After many dangerous turns, the path now takes an eaſterly direction along the lower part of the craggy declivity, at ſome diſtance from the high rocky mound, which is compoſed of limeſtone, and proceeds in a regular ſeries, though at different degrees of elevation. Shortly, however, we arrived at a creſt of rocks projecting into the ſea, and formed of brown argillaceous ſchiſtus. In a few detached ſituations, there alſo occurs a ſandy ſchiſtus, the layers of which ſeem to extend rather to North-weſt and South-eaſt, inclining ſomewhat ſteeper than to an angle of forty-five degrees, and terminating abruptly towards North-eaſt. But, in front of Pſhatka, their declination in general is North by Eaſt.

The next Tartar village along the ſea-coaſt is Mukhalatka. Its diſtance from Laſpi and Foros is computed to be fifteen verſts. Among the ſtones, which the natives of this place employ for partly raiſing the walls of their huts at the ſide of mountains, I met with two ſpecimens of quartz containing large cubes of field-ſpar; but I could not learn from what quarter they had been obtained; nor have I ever obſerved a ſimilar foſſil appearing on the ſurface of any hills in the Crimea.

Beyond Mukhalatka, we met with a layer of grey ſandy ſchiſtus; and, on advancing farther, with a thick laminated free-ſtone, which takes its direction nearly Eaſt and Weſt, ſimilar to moſt other calcareous and ſchiſtous ſtrata that terminate abruptly. Near a place, in the Tartar language called *Alaſma**, there commences a vertical bed of a friable black clay, in which we obſerved alternate layers of iron-ore and

* This term is probably derived from the Greek word Χαλασμα, or Deſtruction.

ferruginous ſchiſtus. Here, probably, a diſruption of the mountains formerly took place along the ſea-coaſt; and it is to be apprehended, that ſucceſſive revolutions will happen within the bowels of the earth, from this argillaceous maſs; on which the narrow path dug on the ſteep declivity, eſpecially about the trenches made by torrents, is extremely dangerous. During the fall of ſnow and rain, to which we were now expoſed, the road was rendered ſo ſlippery, that our horſes could advance only with the greateſt difficulty. Such layers of clay extend to the breadth of at leaſt three hundred fathoms. They are again ſucceeded by ſtrata of limeſtone rock, which are variouſly interſperſed either with ſchiſtus and clay ſimilar to the former, but frequently containing veins of iron ore; or, laſtly, with a ſandy ſchiſtus, partly of a ſoft, and partly of a ſolid conſiſtence. In a few places, we met with argillaceous beds ſeveral fathoms in thickneſs. Theſe are throughout interpoſed with thin lamina, or layers of ſandy ſchiſtus, between which the clay is from a few inches to one arſhine thick. After travelling a ſhort diſtance, we croſſed the fine brook of Daſta-ſu, flowing into the ſea through a deep broad glen; and on the banks of which the limeſtone rock re-appears. The very lofty mount, whence the aſſemblage of rocks begins to riſe, is called Mortſheka; and at its weſtern extremity, there is one of the moſt dreadful mountain-paths leading down the village of Skelä, in the valley of Baidari. This paſſage is by the Tartars called *Merduen*, or Stair; by the Ruſſians, *Leſſinka*; and its courſe may be diſtinctly ſeen to extend along the abrupt declivity. The form of the rocky terraces, which in ſome places appear to have been improved by human labour, reſembles

reſembles that of ſteps. They are extremely dangerous to deſcend, and can be mounted by horſes only with the greateſt difficulty.

The road from the banks of the Daſta-ſu to the village of Kutſhuk-koi *, is interſected by ſeveral hollows, or deep glens, the humid ſoil of which was uncommonly ſlippery, and conſiſted of a crumbling, often ferruginous clay. We arrived there during a ſhower of hail; and a cold wind, that blew down the mountains, rendered our ſenſations very unpleaſant.

Kutſhuk-koi is a remarkable place, both on account of the ſubterraneous convulſion that happened here in February 1786 (of which I have already given an account in my "New Northern Contributions," Vol. I. p. 258, publiſhed in the German language); and as it ſerves to explain thoſe confuſed diſruptions of mountains, which are very evident in many parts of the ſouthern coaſt of Crim-Tartary: nor can I perſuade myſelf that the event above alluded to, is likely to be the laſt of this nature occurring in the peninſula.

The village was ſituated at the ſteep foot of the mountains, nearly four hundred fathoms from the lofty aſſemblage of rocks accompanying the coaſt; and at a ſimilar diſtance from the ſea, on the bank of a deep glen that was connected with another extending farther downward in an eaſterly direction; and both of which, by the conflux of four ſprings, formed a rivulet that flowed along a ſteep ſhore into the ſea. The ſoil between the hollows conſiſted of laminated clay, and a bituminous clayey, or black ſandy ſchiſtus, that breaks in large

* This term literally ſignifies "Little Village."

flat

flat maſſes; though a few creſts of calcareous rock occaſionally projected through the other foſſils *. According to the accounts given by the aged inhabitants, a vehement earthquake, which occaſioned diſruptions in ſeveral parts of the mountainous coaſt, was perceived in theſe environs about fifty years ſince; and it is worthy of notice that, at the time of the late ſinking of the ground at Kutſhuk-koi, violent ſhocks of the earth were experienced in Sileſia, and eſpecially in Hungary.

On the tenth of February 1786, the ſurface of the earth about the deep glens before mentioned, and in another ſtill farther eaſtward, began to burſt, and to exhibit rents or clefts; ſo that on the ſame day the brook, which had hitherto turned two ſmall mills conſtructed by the native Tartars, entirely diſappeared. Two days after, the ſoil having become more diſengaged, and the frightened inhabitants of the adjacent village having removed their cattle, carried off their effects, and abandoned their habitations, the whole tract between the hollows above deſcribed, from the lofty bank of rocks to the ſea-ſhore, fell in about midnight with a dreadful noiſe; and this ſinking continued till the twenty-eighth of February, ſo as to occaſion a terrific abyſs from ten to twenty fathoms deep; in which only a large parallel ridge of hard rock, and two

* It is much to be regretted that the author has not more diſtinctly expreſſed himſelf on this, as well as on many other occaſions: for the original text, in German, is ſo enveloped in parentheſes; and the conſtruction of his periods is, in general, ſo diſtorted, that the ſenſe can often be collected only from the preceding or ſubſequent narrative. Sometimes, however, his ſingular phraſes and expreſſions are totally irreconcileable to the German idiom: even the French edition deſerves little credit, either for accuracy or elegance of diction, ſo that it has afforded no aſſiſtance to the Engliſh *Tranſlator*.

ſmaller

ſmaller creſts remained projecting at the bottom. The ground, thus fallen, extends to about nine hundred fathoms, or nearly two verſts, in length, and from three hundred and fifty to five hundred fathoms in breadth. In proportion as one part of the ſteep declivity was detached beneath the rocky bank, the whole maſs preſſed downward; and the ſtrand was removed farther into the ſea, to a diſtance of from fifty to eighty fathoms. In the night preceding the twenty-eighth, two ſlight ſhocks of an earthquake were perceived; after which the waters of the rivulets that formerly vaniſhed, again commenced to flow on the ſurface, but in a very different direction; previouſly forming various ſmall ponds and fens in the hollow places, and in the new ſtrand. It has not however been aſcertained, whether the main tumbling of the ground was accompanied with an earthquake, as the Tartars were too much alarmed to make ſuch obſervation. The ſtone beds of the ſunken territory, and the fruit-trees that formerly ſtood in orchards, were thrown together in the greateſt confuſion; and a few ſcattered trees are ſtill obſerved to project through the maſs of ruins. Beſide the two mills already noticed, this ſcene of deſtruction comprized eight dwelling-houſes with their court-yards and gardens, as well as orchards and corn-fields belonging to thirteen other Tartar families. The ſprings now flow in two diſtinct branches through the deep glens lately formed, and which are ſtill deſtitute of verdure. In places where the ſoil has remained on the ſurface, the inhabitants have again ploughed the land, and divided it into fields. On the borders of ſuch hollows, the ruptured limeſtone rock projects in every direction; and the central ridge between them conſiſts of a more ſolid bed of the

ſame

ſame calcareous foſſil which was not rent; though it is likewiſe in a very diſordered ſtate. The fallen or diſſevered earth itſelf exhibits a black ſandy ſchiſtus in large flags, which had probably been interſperſed with clay. On the whole, it may be rationally conjectured, that part of the powerful ſprings ariſing below the lofty bank of rocks, had long ſince penetrated through the deep argillaceous ſtrata; till the rivulet, which formerly flowed on the ſurface, had, in its ſubterraneous progreſs along the ſteep declivity, ſtill more ſoftened the clay in its neighbourhood, that was already excavated. Thus it happened, that the whole maſs of the incumbent harder minerals could not fail, partly to ſlide down the mountainous height toward the ſea, and partly to ſink on the ſpot to a conſiderable depth.

At the ſame time, when this cataſtrophe took place at Kutſhuk-koi, a ſteep cape, projecting into the ſea between Kutſhuk-Oſen and Kuru-Oſen was likewiſe thrown into confuſion; an event, of which I ſhall ſpeak in the ſequel. I ſhall farther ſhew, in deſcribing other regions of the ſouthern mountains in the Crimea, that many extenſive devaſtations have been occaſioned merely by ſprings undermining the ſides and bottoms of ſteep eminences; and that they are not, as others have ſuppoſed, the effects of volcanos.—In the primitive ages of the world, when all the hills were much higher and ſteeper, and the ſea ſpread it waters to the foot of ſuch eminences, it muſt have neceſſarily followed that the floods, as well as the ſtreams or rapid torrents, which flowed in caſcades from thoſe elevated precipices, were ſtill more powerful, and occaſioned almoſt incalculable diſruptions and ſinkings of mountains, before the ſurface of the globe had acquired its preſent form.

The

The village of Kutſhuk-koi is now ſituated, together with other diſperſed dwellings, contiguouſly to the weſtern border of the ſunken territory; and the road paſſing over that edge is extremely difficult. The next village along the coaſt is Keekenice, ſcarcely five verſts diſtant from the former. On the mountainous ſide, we met here, and likewiſe in our progreſs, with the *Pyracantha*, which the Tartars denominate *Shaitan-Teken*, or Devil's Thorn, in uncommon abundance; and its flat expanded branches cover large ſpots of ground. The turpentine tree, various ſpecies of wild fruit-trees, the native vine, *Fraxinus ornus*, *Celtis*, *Dioſpyros Lotus*, and *Juniperus Lycia*, begin frequently to appear among the woods; a few beautiful *Orobi* flowered already in April, and preſented agreeable vernal plants. The continued rocky bank, which forms the uppermoſt hilly border, in ſome parts apparently conſtitutes the fifth, in others the fourth part of the whole elevation. Beyond ſuch bank, the mountains decline ſteeply towards the ſea, exhibiting in ſome places rocks, and, in others, a mingled maſs of fragments, forming terraces covered with verdure, as well as occaſional precipices. In many tracts there is a narrow ſtrand, or extenſive level ſhoals proceed from the lowermoſt rocky part into the ſea; though, in other ſituations, the coaſt alſo conſiſts of ſteep rocks. Large maſſes of the latter are occaſionally precipitated, eſpecially where the hard layers are undermined by ſprings, or where the rocks happen to be more than uſually rent; ſo as to become ſeparable by heavy ſhowers of rain, or by the effects of froſt.

In the vicinity of Keekenice, no other foſſil occurs, except the grey ſandy ſchiſtus of various degrees of thickneſs, and the

ſlight grey calcareous rock, in maſſes forming bulky ſtrata. At a ſhort diſtance from this village, we arrived at a deep glen, in which we croſſed a brook, called by the Tartars Choris-Ouſehen. Here the rocky mountainous bank, after proceeding without interruption to the length of more than twenty-two verſts, ſuddenly declines; and is then again connected with its farther and more eaſterly continuation, by means of two diſtant rocky precipices, one of which is ſaid to be perforated. A tolerably convenient paſſage, called *Eſkee-Bogas*, or the Old Opening, leads over the mountains ſituated along the ſhore. Moſt of the clefts in the free-ſtone ſchiſtus, which preſents itſelf here, as well as in the courſe of our road, are incruſtated with fine quartzoſe cryſtals. We met with a conſiderable ſtream, termed Booyouk-Ouſehen, which deſcends over ſmall caſcades into another deep glen, where the ſchiſtous clay again occurs; but at one ſide its layers abruptly terminate towards the South-weſt, and are interleaved with lamina of ſandy ſchiſtus. As the lofty bank of rocks begins at Eſkee-Bogas to withdraw progreſſively farther from the ſea, there appear on ſuch declivity fine coaſt-lands, which afford excellent fields for the culture of flax and wheat; though ſuch grounds might likewiſe be employed for raiſing vines and olive-trees. They are ſituated beyond another hollow glen, by the Tartars denominated Beeyouk-Khuris.

The ſucceeding village of Leemena lies ſomewhat higher up the mountainous declivity; and the road conducting thither is ſo rocky, that a path made at the lower part of the ſea-coaſt, is preferably frequented. This path exhibits a great variety of mineral congeries, abounding with veins of ſpath and quartz.

Among

Among them I alſo remarked a ſubſtance reſembling lava, the cavities of which were filled up. The ſhore itſelf, however, is to a conſiderable diſtance compoſed of free-ſtone mingled with quartz. Next in order, a capacious promontory, conſiſting of a grey calcareous rock (emitting a fetid ſmell on friction), projects and terminates near the ſea with a rugged, inacceſſible, and detached lofty rock; the upper ſurface of which is almoſt level, but declines toward the Eaſt; being fortified with a tranſverſe wall. On this rock, I ſaw for the firſt time that elegant tree the *Arbutus Andrachne*, diſplaying its beautiful foliage, with its branches and trunk of a blood-red colour, though it ſtood at ſome diſtance, on an inacceſſible height. Immediately behind the cape, contiguous to the ſea, appears a craggy rock of a ſimilar kind; in front of which is a ſhelf of a whimſical figure, and between them projects a pointed rock, not unlike an arrow. To the higheſt part of the rocky eminence, one ſide of which forms an impending precipice, there is attached a wall two arſhines in thickneſs, having a ſtone front, but being internally filled up with lime and coarſe ſand. This fort is by the Tartars called *Tſhiva;* and the former one, erected on the large rock, is termed *Iſſar*. Only a narrow and very dangerous path leads to ſuch fortified cliff, along a creek bounded by the ſame rock towards the Eaſt. Another bay, with a like ſhore, occurs between the latter and the weſtern promontory. The road, paſſing over barren rocks, is far from being ſafe.—A ſpecies of *Helix*, with circumvolutions to the left, and ſeldom found in other parts of the Crimea, was here very common. I likewiſe met in theſe environs, and as far as Simäus, with the *Convolvulus Scammonia* thriving between the

rocks, and producing roots equal in thickneſs to a man's arm; though ſuch plant is ſaid to grow abundantly in Anatolia, where it has received the name of *Mamutia*.

Immediately behind theſe rocks, we arrived at a level ground, on which we noticed the foundation of a very ancient building, divided into different ſquares, and erected of large coarſely hewn free-ſtones. Adjoining to ſuch ruins, there is a hollow glen, where a fragment of a white marble column, about a foot in diameter, remains on the ground; and from which the ſuperſtitious natives occaſionally break off pieces for internal uſe.—Next follows an excellent ſpring, which the Tartars diſtinguiſh by the corrupt Greek name of *Agi-panta*, or All Saints. At a ſhort diſtance from ſuch fountain, and thirteen verſts from Keekenice, we reached the village of Simäus, ſituated in a delightful valley; where a number of old olive-trees occaſionally diſpoſed in rows, and likewiſe numerous pomegranate-trees, are interſperſed between excellent orchards. The terrific view of the rocky banks facing the land-ſide, and the proſpect of the open ſea, render this charming vale more intereſting than it appears to be from the delineation given of it, in the eleventh plate.

The Tartar mountaineers of the three villages of Keekenice, Leemena, and Simäus, have a ſtrange phyſiognomy, different from that of all the other inhabitants of Crim-Tartary. Faces of an uncommon length, as well as arched noſes exceedingly long, and high heads compreſſed with a view to render them unuſually flat, all contribute to produce diverſified caricaturas; ſo that the greater part of theſe perſons have diſtorted countenances; and the leaſt deformed reſemble the

Gfeller Del.t

Hedland Sculp.

the figures of ſatyrs. Profeſſor HACQUET, to whom I communicated this remark, during his reſidence in the Crimea, directed my attention, in one of his ſubſequent letters, to a paſſage contained in Scaliger's works*; and which may probably relate to the peculiar phyſiognomy of the people inhabiting this part of the coaſt. "The Genoeſe," ſays the writer laſt mentioned, "had adopted from the Moors, their "predeceſſors, the cuſtom of compreſſing the heads of new-"born infants about the temples: thus it happens, that their "children, both in head and mind, reſemble the genuine "Therſites; though ſuch practice is now diſcontinued."—I ſhall not attempt to decide, whether theſe villagers, with their ſingular faces, are the remaining deſcendants of the ancient Genoeſe who inhabited the Crimea, or thoſe of any other nation that had retired hither; taken up their ſecluded abode among the wildeſt rocks of the ſouthern coaſt; and thus, notwithſtanding the lapſe of time, preſerved their extraordinary viſages. (The reader is, on this occaſion, referred to the ſecond figure in the twelfth plate.) It is farther remarkable, that the hair and beards of ſuch mountaineers are almoſt uniformly light brown, reddiſh, or even flaxen; a circumſtance ſeldom occurring in the Crimea.

On the other hand, it is certain that all the inhabitants, who at preſent occupy the villages ſituated on the ſouthern coaſt, though regarded as Tartars, are nevertheleſs the off-

* *Scaliger, in Commentar. ſup. Theophraſt. de cauſis plantarum, Lib. V. p.* 287. "*Genuenſes, cum a Mauris progenitoribus accepiſſent olim morem, ut infantibus recens natis* "*tempora comprimerentur, nunc, abſque ullo compreſſu, Therſiteo et capite et animo naſ-*"*cuntur.*"

ſpring

ſpring of other nations, who had either landed here, or had been driven thither from the interior; and who were ſtrangers to the Tartar race, but eſpecially to that of the Mongoles: hence the original natives of Crim-Tartary conſider them as aliens, and point them out by the contemptible name of *Tat*.

The valley of Simäus is encloſed on its eaſtern ſide by a promontory called *Crotis Burun;* from which we enjoyed a proſpect over the dale that was peculiarly charming. The water of the ſpring, riſing in this village, is ſlightly chalybeate; and the calcareous rocks, which are ſcattered in fragments, as far as the vicinity of dwelling-houſes, conſiſt of a very ſtrong *Dyſodes*, or fetid ſtone. Between two of ſuch maſſes lying on the burying-ground, I took notice of two bulky trees of the date-plum, or *Dioſpyros Lotus*, by the Tartars called *Karkos*.

Behind the eaſtern cape above mentioned, we had a view of the lofty mountains that ſurround the remarkably warm valley of Alupka with uninterrupted banks of ſteep craggy rocks; and ſuch promontory, being the moſt ſoutherly part of the ridge, probably deſcribes the Κριοῦ Μετωπον, or Ram's Head of the ancient Greek navigators. The elevated weſtern part of this line is, by the Tartars, termed Skutan Kayaſſi; the middle region, Sahan Kayaſſi, or the Hawk's Mount; and the higheſt eaſtern hill, Pöter Kaya, or with the Greeks Ayee-Petra, ſignifying Peter's Rock. Between the ſecond mountain and the rocky precipice called Keeſel-Kaya that extends to the Pöter-Kaya, there is a ſmall interſection in the ſummit of the rocks, which has received the name of *Topek Bogaſſi*, or the Dog's Paſſage, through which a horſe-road leads over the Yaila, or Alpine Flat,

Flat, both to Uſſundſhi, and Skelä. Another ſtill more difficult path proceeds at the ſide of Peter's Hill, in a very ſteep direction towards Uſenbaſh and Stilä.

On arriving at the top of Crotis-Burun, we could completely ſurvey the encloſed valley of Alupka; and we diſtinctly perceived the warm air thence wafted to us, even in the cold weather of ſpring, when Peter's Hill was covered with ſnow that had lately fallen. Nevertheleſs, we were informed that ſometimes, during the winter, cold northerly winds blow down the mountains into this dale, and produce very ſenſible effects.

The valley into which we now deſcended, abounds with ſprings; the firſt of thoſe we paſſed bears the Greek name of Krotiria. We next croſſed the extenſive hollow ground, termed Kara-Tepé, the ſoil of which is a black ſchiſtus. Its upper part is named Stavas, and affords a channel to the water of a conſiderable brook. In the dale itſelf, we met with a ſmall ſpring called Mäka-Soo, and afterwards with a large brook flowing in caſcades down the ſteep mountains; and which has received the ſemi-Greek name of Stauris-Ouſehen, or Croſs-Brook. The village of Alupka lies on its banks, cloſe to the ſea.

This village, with all its houſes and gardens, as well as part of its arable lands, are ſituated upon and between prodigious fragments of rock, fallen towards the ſea from a lofty bank; which extends, at a breadth of three hundred fathoms, to a diſtance of nearly two verſts into the country, as far as the high terrace of the mountains. In the midſt of this aſſemblage of rocks, there appears a grey or white-ſpotted, and ſometimes greeniſh kind of foſſil, reſembling a ſerpentine-ſtone. It is found

found in bulky, irregular maſſes, being generally of an oblong trapezoidal figure, or compoſing polygonal bodies that are frequently eight, ten, or more fathoms in thickneſs; and lie either ſcattered without any order, or heaped upon one another, as it were by the hands of giants. The largeſt collection of theſe maſſes occurs in the middle of the valley, approaching towards the ſea, where we obſerved thick laurel-buſhes growing between the rocks. It conſiſts partly of the foſſil laſt mentioned, and partly of a grey, ſomewhat fetid, limeſtone. Fragments of the latter kind, which principally compoſes the lofty mountains that preſent themſelves, are diſperſed on both ſides, forming the eaſtern and weſtern borders of this ſtony maſs. Both ſpecies of rock are ſpread in detached pieces from the foot of the eminences, whence they have been precipitated to the edge of the water; and ſingle blocks project over the ſurface of the ſea in the form of ſhelves. In ſome places, we likewiſe met with maſſes of calcareous ſtone reſembling marble, ſuch as had formerly been broken, but were again combined by means of ſtalactite, though in a looſe and porous ſtate. A few of theſe bodies were ſpotted with red, and interſperſed with ſpathoſe veins. On examining the low grounds, both to the Eaſt and Weſt of the more lofty aſſemblage of rocks, they were found to conſiſt of the ſame laminated clay, which is frequently intermingled with a harder ſchiſtus and ferruginous ore, like that I firſt remarked in the vicinity of Chalaſma, and which has probably occaſioned the dreadful cataſtrophe at Kut-ſhuk-koi. Regular ſtrata of this compound foſſil alſo occur within, and contiguous to the ſea, extending in a North-eaſterly direction, and inclining a little to the North-weſt, or towards the

the ſea. Near a ſmall ſource, they exhibit a ſaline incruſtation on the lateral ſurface. The more powerful ſprings before mentioned, together with the brook Stauris, have excavated the broad valley of Kara-tepé on its weſtern ſide; but the ſtratified beds, laſt alluded to, lie moſtly in a ſtate of diſruption, as far as the narrow ſhore in front of Alupka, and appear in a manner ſlidden down towards the ſea. In an eaſterly direction, the very ſame ſchiſtus forms a large, ſemi-globular, hollow ground, in which numerous gardens and olive-trees are planted; and through which the rivulet Karakunga (that riſes at the foot of the lofty ridge of mountains, between rocky fragments) diſcharges itſelf into the ſea, by caſcades. Behind this valley, towards the Eaſt, there follows another chain of detached high rocks, proceeding to the ſea-ſhore; and along which the brook Haſtagaya precipitates itſelf in powerful caſcades, as it deſcends the foot of Peter's Hill.—Here the two bulky ſtrata of ſchiſtous clay, between which the layers of calcareous rock, and a ſpecies of wacca reſembling ſerpentine-ſtone, reſted in a ſloping manner, were gradually ſoftened, partly by the ſea, partly by the conflux of many ſprings and brooks already ſpecified. Thus ſuch foſſils, being at length undermined by the water, were puſhed down their ſteep declivities towards and into the ſea; ſo that the downfall of the incumbent maſſes of rock, which remained without ſupport, was neceſſarily occaſioned.—Whoever may have an opportunity of examining with attention the environs of Alupka, and of comparing them with thoſe of Chalaſma and Kutſhuk-Koi (which on a ſmaller ſcale greatly reſemble the former), will readily agree with me in this conjecture.

As I have not met with the ſhirly wacca, above mentioned, in any other quarter of the Crimea, except in the valley of Alupka, this mineral deſerves particular notice. The large maſſes of it, which ſerve, in different parts, either to form the back walls of houſes attached to them, or to conſtitute part of encloſures, are variouſly mixed, and preſent a diverſified texture. Some of the lumps appear throughout to be a coarſe, yellowiſh-grey, or greeniſh ſerpentine-ſtone, ſpotted with white; others contain a large portion of lime, the particles of which cannot be diſcovered by the eye; others, again, are interſperſed with grains of ſhirly ſpar, or almoſt entirely conſiſt of the accumulated whitiſh foſſil laſt mentioned, and are in a manner porous. Their colour depends on the various ingredients of which they are compoſed; though it is, in moſt inſtances, either light or dark grey. By the teſt of nitric acid, a ſlight efferveſcence takes place only in a few parts of this wacca. When ſubmitted to an intenſe heat, its ſolidity is not materially affected; but, if plunged into water, while hot, it attracts ſuch element with a ſtrong hiſſing noiſe. The largeſt rocky maſſes of the ſame mineral lie below in the valley, mixed with ſmaller fragments, and partly covered with vegetable mould, which conſtitutes the ſoil of gardens. As we advanced from the low country up the mountainous path leading to Uſenbaſh, Stilä, and Manguſh, we progreſſively met with a greater number of bare fragments, looſely piled one upon another, without exhibiting any earth or fertile ſpots between the rocks. On an eminence, which is tolerably covered with earth, and riſes above the hollow ground overgrown with laurel-trees, there are about ſixty-ſix

old

old olive-trees, being partly in detached ſituations, and partly diſpoſed in rows. Here the *Ephedera monoſtachya* attains a conſiderable ſize. In the higher parts we noticed a whitiſh-grey lime-ſtone, which extends as far as the high rocky banks, and is in a ſimilar ruptured ſtate. After having croſſed a deep glen, in which a brown ferruginous ſchiſtus and clay are mixed with iron-ore, we obſerved, on elevated ground, three large abrupt maſſes of calcareous rock, that appear to have been caſt of one piece, and are nearly thirty fathoms high. Large trees of the *Pinus maritima* grow between the clefts of ſuch rocks, at the foot of which the brook Karabunga riſes out of a conſiderable heap of ſtones, forming a powerful ſtream; and precipitating itſelf through a hollow ground into the ſea. We next arrived at a lofty terrace of the mountains, called Malaiya, and which is covered with marine pine-trees, ſpreading their flat heads over a large ſurface. Here, likewiſe, the grey early Oak, or *Quercus Cerris*, abounds in every direction, and its branches begin to lodge on the ground.

Leaving this ſtony promontory, we deſcended into a deep valley commencing at the baſis of the high rocky wall, where we diſcovered the ſource of another ſpring, termed Haſtagaya. It riſes with impetuoſity; and, after making numerous caſcades, often ſeveral feet high, flows through a broad glen, foaming towards the ſea. On the ſurface of all the eminences, as well as on that of the lofty Peter's Hill itſelf, we perceived no other foſſil than the hard, grey, and ſlightly fetid calcareous rock; which, throughout the whole chain of mountains, has no determined limits or ſtrata; and, at the ſides of the deep clayey glens, it every where exhibits traces of decompoſition.

In the mountainous parts of this region, foreſts of pine-trees are frequently met with; but their tops are moſtly bent or inflected, except in low grounds, where the ſtems grow erect. The Tartars, however, exert their utmoſt endeavours to eradicate ſuch uſeful ſpecies of wood, by depriving it of its reſin, ſetting fire to it, and by ſimilar deſtructive means. The reſin, extracted from this tree, affords an agreeable fumigation, not inferior to that of the mountain-pine, imported from Moldavia into Ruſſia, for the ſame purpoſe. On the South ſide of Peter's Hill, the ſtrawberry-tree, *Arbor Andrachne*, grows in a few particular places. The valley is one of the hotteſt along the whole ſouthern coaſt of the Crimea: for, being open only towards the South, and ſheltered from all cold winds, it receives the ſolar heat during the whole day. I experienced the effects of its ſituation, when I viſited this dale in the ſubſequent ſummer, but eſpecially on entering the deep glens conſiſting of black ſchiſtus. Here I ſenſibly felt the heat of the ſoil through the ſoles of my feet; while my hand could not, for three minutes ſucceſſively, endure the ſtones heated by the ſun. Nor would it be poſſible to raiſe grain on the ſtony fields, which the terraces and mountainous declivities occaſionally preſent, if the Tartars did not, in almoſt every direction, avail themſelves of ſmall veins of ſprings, with which they ſedulouſly water their lands.

All the productions of the Eaſt, requiring a hot climate, would proſper here. Fig, pomegranate, and olive-trees, beſide thoſe planted in gardens, grow abundantly between the rocks, in

in a native ſtate; while the laurel-tree, every ſpecies of wild fruit-trees, the vine, the *Dioſpyros*, *Terebinthus*, and *Celtis* are moſt common in this valley. A few cypreſs-trees, the *Lauroceraſus*, *Mimoſa arborea*, the box-tree, and other plants, which have been introduced into this country from Conſtantinople, are in a thriving condition. No other precaution is taken for preſerving a ſmall orangery, than that of ſheltering it during the winter in a Tartar hut, where ſuch plantation is but indifferently protected from the cold. In no part of Taurida have I ſeen a greater number of old walnut-trees; many of their trunks being from three to four fathoms in circumference. Wild vines, as well as olive-trees, occur here, of an almoſt incredible ſize. All the indigenous plants, growing in the warmeſt regions of Crim-Tartary, likewiſe ſucceed in the dale above alluded to. The moſt common, however, are the *Rhus Coriaria*, *Rubus ſanctus*, *Ruſcus aculeatus*, *Ciſtus incanus*, *Alyſſum clypeatum*, *Verbaſcum Græcum*, *Scutellaria Orientalis*, the remarkable *Trifolium ſubterraneum;* a ſpring violet bearing a high ſtem, and large white or light-blue flowers of a peculiarly ſweet odour; the *Convolvulus Scammonia*, and ſeveral other plants of warmer climates. In the lower parts, where moſt of the laurel-trees grow, there is a pond among the broken rocks, the water of which has a dark-brown colour, and exhibits a ſingular incruſtation. The ſoil around it is marſhy; and the *Polypodium Europæum* delights in the moſſy ſurface of ſtones. Between the rocks of the beach, I obſerved the *Crithmum maritimum*, which the modern Greeks ſtill denominate Krithama. Scorpions and pilchards are alike common here, together with other ſmall fiſh that frequent the vicinity of

of ſhelves, and likewiſe very palatable crabs. The pilchards are caught either by means of a caſting-net, which the French call *Epervier*, the Tartars *Satſma*, and the Greeks *Peſovolo*; or they are taken with the hand between the ſtones on the coaſt during the night, by the aid of flambeaux made of reſinous wood.

Alupka ſwarms with numberleſs ſcorpions; though ſuch reptiles ſeldom occur in other parts of the Crimea. In the vernal ſeaſon, they may be found of different ſizes, and beneath almoſt every ſtone of old walls, eſpecially in ſituations where dung is depoſited. They belong to the genus termed by Linnæus *Scorpio Carpathicus*. The largeſt kind of blue *Carabus* alſo frequently infeſts this place.

The Tartars in the vicinity of Alupka are diſtinguiſhed by a peculiar phyſiognomy, nearly reſembling that of the inhabitants of Simäus and Leemena. Their hair, like that of the latter, is generally of a light brown, or even flaxen ſhade; which is very ſeldom obſervable among the other natives of Crim-Tartary, including the Greeks and Turks. Being uncommonly ſwift in their motions, they ſkip in walking from ſtone to ſtone, like dancers. Their huts, ſimilar to moſt of thoſe on the ſouthern coaſt, from Balaklava to the neighbourhood of Aluſhta, are generally erected againſt the rocky terraces, and partly hewn in the rock itſelf; having only two ſide-walls, and one in the front. The roof is covered with earth, and uſually on a level with the terrace formed by the mountain; ſo that a perſon may eaſily paſs from the one to the other. In the interior of ſuch habitations, there is ſimply a ſpacious fire-place with a chimney; and broad cuſhions are placed along the

the oppoſite wall, both for the purpoſes of ſitting down and ſleeping upon them.—The ſtony nature of their confined wheat-fields, does not admit of uſing the large Tartar wheel-plough; inſtead of which, they employ a kind of crook, with a plough-ſhare in the form of a ſpear, almoſt horizontally adapted to its wood, and directed by a lever about ſix ſpans in length; both being manufactured of the ſame trunk of an aſh-tree. This wood is provided with two mould-boards, and connected with a beam twelve ſpans long, to which only two oxen are generally yoked. The whole implement is remarkably ſimple, and might alſo be advantageouſly employed in vine-yards. It is by the natives called *Sabon*, and a repreſentation of it is given in the eighth vignette, fig. 1.—In order to convey timber and fire-wood down the ſteep mountains, the Tartars make uſe of a peculiar ſledge, termed *Khaaſak*. It is alſo drawn by two oxen, and is delineated in the ſame vignette, fig. 2.—Their diminutive cattle are uncommonly active, being accuſtomed not only to trot like thoſe bred in the environs of Caucaſus, but alſo to climb up and down the rocks, in the manner of mules. Few horſes are kept by the Tartars inhabiting the mountains: though of a ſmall ſize, they are very hardy and ſure-footed. On the contrary, they poſſeſs numerous herds of goats; many of which are black, but their faces, legs, and bellies, of a fallow colour; others are altogether fallow, or brown-red. Their ſheep, as well as the goats, are ſmall, with fat ſhort tails; having naturally fine fleeces, that are ſold at much higher prices than the wool obtained from the ſheep reared on the ſteppes; and which might be eaſily carried to the higheſt degree of perfection, by the introduction of Spaniſh

rams.

rams. Theſe remarks may alſo be applied to the other inhabitants of the ſouthern vallies, who are not diſtinguiſhed by thoſe peculiar features above deſcribed, but are a handſome and cheerful people, as will appear from the ſecond figure of the twelfth plate. The latter, indeed, are deſcended from a very different race of men; and their dialect alſo deviates, in ſome reſpects, from that ſpoken by the Tartars, who dwell on the northern declivity of the mountains, and in the adjacent dales.

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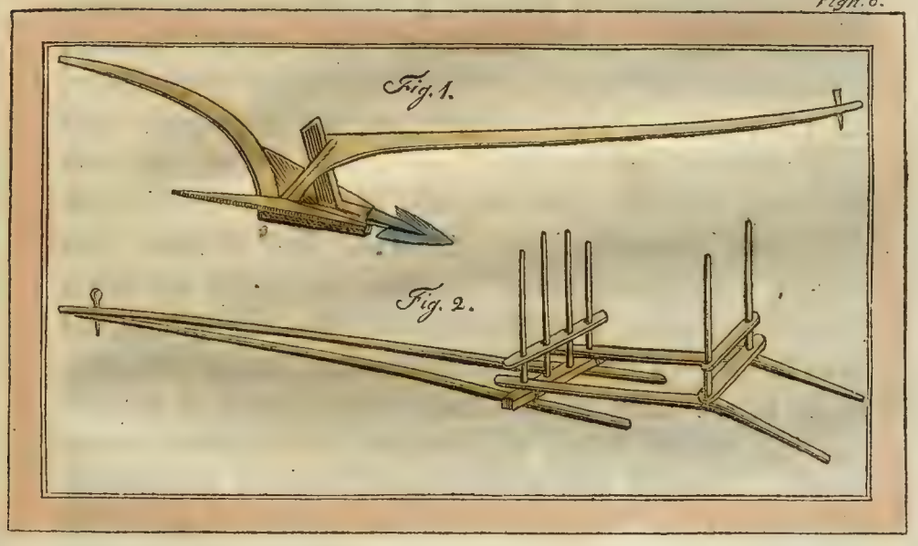
Vign. 3.



As I have ſeveral times been in Alupka, and have returned thence over the mountains, by different roads, I am induced to deſcribe two of them; in order to preſent a more accurate knowledge reſpecting the nature of theſe eminences. There is a third road leading due North by Kutſhuk-Uſenbaſh and Stilä, but which I have never frequented: the two others take a more weſterly direction. I performed my firſt journey in the month of April, immediately after a violent tempeſt proceeding from the ſea, and followed by heavy ſhowers; which ſtill concealed the lofty regions in the clouds. The road I then preferred, directly after leaving the village, paſſes between numerous fragments of ſtone, obliquely North-weſt, up the

ſteep mountains, along the deep glen of Kara-Tepé, which is encloſed with the broken calcareous rock; and, after croſſing the latter, we travelled along the more weſtern hollow ground of black ſchiſtus above mentioned, and which is likewiſe accompanied with a natural ſtone-wall, riſing progreſſively, but ſtill preſenting a few fields on the hilly declivities. Our route now conducted us over other calcareous rocks, that were interſected with deep glens compoſed of ſchiſtous clay, through fine foreſts abounding with pine-trees, moſt of which had circular, umbrageous heads. Farther, we croſſed the brook Sahankaya-Ouſehen, that ariſes from a confluence of ſprings, and flows in ſmall caſcades. Here we advanced, during a thunder-ſtorm, in the midſt of low clouds; and, inſtead of the rain that had hitherto fallen, we perceived only a miſt or humid vapour. Through this clouded atmoſphere we progreſſively aſcended the ſteep rocky path; in the environs of which the pines were ſucceeded by the common oak, the linden-tree, and the trembling poplar. At length, after riding through a wide and deep valley conſiſting of black ſchiſtus, and overſpread with calcareous fragments of a prodigious ſize, we arrived at the higheſt lime-ſtone rock, that ſtands ſingly, exhibiting ſeveral dreadful precipices on its ſouth-weſtern ſide. While we travelled beneath the latter, during rainy weather, large maſſes were detached and precipitated in various directions, ſo as to expoſe our lives to imminent danger; till we paſſed through the defile between the rocks, termed Topekbogaſſi, in order to reach the alpine flat or Yaila.

On this occaſion, I cannot omit to mention a phenomenon which happened, both during my preſent, and in the ſubſe-

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quent ſummer journey. Every time I paſſed the lofty rock laſt alluded to, during a violent tempeſt, the clouds, proceeding from the ſea, were attached to it in two volumes, totally diſtinct from each other. While it rained in the lower regions, we perceived in the firſt ſection of clouds only a wet and cold miſt. On aſcending this column of vapour, rain again fell from the upper clouds that enveloped the ſummits of rocks, and frequently ſettled on the Yaila, in the form of a thick fog. Now, the lowermoſt volume, when viewed from the eminence, reſembled a white undulating ſea, and offuſcated the whole proſpect of the ſubjacent country. Dreadful thunder and lightning occaſionally iſſue from the upper diviſion of the clouded atmoſphere.

The Yaila, which I have repeatedly mentioned, and which we reached immediately after paſſing the defile between the lofty creſt of rocks, repreſents an immenſe alpine flat, well covered with verdure; diverſified partly with rocky terraces, partly with concave grounds; and inclining here towards the North-weſt. At ſo late a period as the month of June, all the hollow places, as well as the cavities beneath the terraces, contain large quantities of ſnow; which uſually remains on the plain itſelf till May. Various ſpecies of *Crocus*, the primroſes and other plants, which in different parts of the Crimea flower in the months of January and Febuary, do not unfold their bloſſoms here, till the latter end of April, or even in May. Among the plants occurring on the northern declivities, I particularly noticed the *Draba pyrenaica*, *Androſace Chamaeſyce*, *Gnaphalium ſupinum*, *Veronica orientalis*, *Polygala Schreberi*, *Iberis ſaxatilis*, *Pedicularis tuberoſa*, and other alpine

vegetables. A few rocky eminences occaſionally appear on this plain region. In ſome parts, there are gulfs or pits, not unlike large fountains, or ſubterraneous wells, in which the accumulated ſnow of ſeveral years remains during the whole ſummer, and by its gradual diſſolution ſupplies latent ſprings. More frequently, however, we met with ſhallow trenches formed by torrents, and vallies (often without any place of egreſs) with different angles, and circular depreſſions of ground, becoming progreſſively deeper, more extenſive, and being covered with wood; among which the white beech, oak, and numerous lofty bay-trees are the moſt conſpicuous. Through one of ſuch vallies, the road leads to Uſſundſhi, whither we were obliged to deſcend a ſtony hollow ground, overgrown with juniper-trees; and on foot to conduct our horſes by the bridle; as the road was ſo ſteep, that the animals could not ſupport themſelves in an erect poſture. The diſtance from Alupka to Uſſundſhi, croſſing the Yaila in an oblique direction, may be computed at nearly thirty-five verſts; and from the latter place to Skelä, one of the moſt beautiful and pleaſant ſpots in the valley of Baidari, about five additional verſts; farther, to Baidari itſelf, ſix verſts; and thence to Tſhorguna, by the way of Alſſu, being the moſt direct horſe-road, it is only fourteen verſts.

On croſſing the Yaila in a due northerly direction, the diſtance from Alupka to Kokos is about thirty verſts. The latter is a large and beautiful village on the banks of the Kabarta. There are two ways leading to this place, either through the next valley of Gaſpra, or by aſcending the road already mentioned, through Topek-bogaſſi, or Simäus-bogaſſi. Here we met with

with a good horſe-road over a level tract of the Yaila; having a ſoil of reddiſh loam and coarſe gravel, which has apparently originated from the decompoſition of the ancient lime-ſtone rock. After travelling about four verſts, the plain becomes diverſified with rocky terraces, the upper ſtrata of which conſiſt of calcareous marl, and incline towards the North. Scarcely eight verſts from the ſouthern border of the eminences, we reached the extenſive and woody dale, watered by the river Kabarta. After deſcending a ſteep and narrow glen, through which the brook Kuru-Oſen takes its courſe, we paſſed through a ſeries of dark foreſts; where I occaſionally obſerved the *Sorbus aucuparia*, *Cratægus torminalis*, as well as the common pine-tree, which ſeldom occur in other parts of the Crimea, and likewiſe the common *Cypripedium*. Next, we were obliged to croſs the brooks ariſing from the ſprings of the Sibrikaya-Ouſehen, over the moſt difficult paths, and to paſs through an extremely ſteep, dark valley, covered with wood, and deeply excavated between rocks. On its weſtern ſide, this dale is bounded by the lofty precipices of Sibritaſh and Daviltſha; and on the right, by the vaſt, abrupt mount of Boika; while, at its lowermoſt part, the Kabarta itſelf flows with a violent noiſe, in numerous ſmall caſcades. Near the handſome village of Kokos, however, the vale becomes more open, and affords the moſt charming views of the mountains. Towards the South, we enjoyed the proſpect of an extenſive plain, as far as the rocks of Sibrikaya, Sidam, and Daviltſha. To the weſt of the river, we ſaw, in a ſoutherly direction, Mount Boika, of which a large portion was, ſeveral years ſince, precipitated into the Kabarta; ſo as to impede its courſe for a con-

a conſiderable time. In the north-eaſtern quarter we deſcried the long ridge of Booyouk-Kayaſſi; and, laſtly, to the North, in front of the open valley, appeared the lofty hill called Ayee-George; which muſt be claſſed among the more recent cretaceous lime-ſtone heights.—The Tartar inhabitants of Kokos have acquired opulence, by trading in timber, and in ſuch wood as is fit for agricultural or domeſtic implements: both are ſlidden down the terrific, ſteep eminences into the vales, by means of the inſtrument or ſledge above delineated. They dwell in neat cleanly houſes, and cultivate fine gardens. Memetſha Bey, Counſellor of College, and proprietor of this village, which is the largeſt in the whole peninſula, here poſſeſſes a well-built manſion and a harem, in the Turkiſh ſtyle, together with an excellent mill.

Below Kokos, where the road leading to Bakhtſhiſarai croſſes the river Kabarta, the ancient brown ſchiſtus extends in a direction from Eaſt to Weſt; and abruptly declines, in one place towards the South, in another to the North, at equal angles of forty-five degrees. On following the courſe of the Belbek, we perceived, near the village of Fotuſala, or Fotſala, the white recent calcareous mountains directly before us; and, on proceeding thence to the left, or taking the weſtern road to the village of Shülü, we travelled in a continued valley, which diſtinctly ſeparates theſe accumulated calcareous, marly heights from the more ancient and level mountains. The former is throughout lofty and diſſevered, extending in the direction above deſcribed; while the latter conſiſts, in this neighbourhood, of ſmaller and leſs abrupt hills abounding with wood, and partly compoſed of lime-ſtone rock. In travelling

travelling through the valley laſt mentioned, and that oppoſite to it, we could clearly trace ſuch mountainous diviſion to the diſtance of twenty-five verſts, till we arrived at Shülü.

In order to return to the deſcription of the ſouthern ſea-ſhore, and of the contiguous ruptured mountains, it ought to be previouſly remarked that, in proportion as the coaſt beyond Alupka takes a north-weſterly turn, the eminences, and eſpecially their rocky ſummits, become more diſtant from it; being at leaſt three or four verſts from the ſea, towards which they form extenſive, though likewiſe rocky and mountainous, declivities. By this change in their poſition, the ſtrata of the hills begin to appear more diſtinctly in their ſections along the coaſt.

The road from Alupka to Yalta, a diſtance of fourteen verſts, leads firſt through the large and deep circular valley of the brown ſchiſtus above mentioned; which, being watered by the brook Karakunda, is embelliſhed with orchards, and particularly with olive-trees. This dale is ſeparated from another compoſed of the ſame foſſil, by a ſmall ridge termed Ayee-Vlaſs, which is covered with broken fragments of calcareous lime-ſtone. The latter of theſe vales is interſected by the rapid brook Haſtagaya, or the Painful Stream; which name has been given it, in conſequence of the floods that frequently carry off cattle, and daſh them with fatal violence againſt the rocks. The ſame rivulet alſo turns a few Tartar corn-mills.

The next in ſucceſſion is a more lofty ridge, exhibiting a decompoſed lime-ſtone rock, and projecting into the ſea, with a cape

a cape called Dermen-Burun. After croſſing ſuch ridge, we entered an extenſive, round and deep valley, the excellent ſoil of which deſerves to be employed for the culture of vines and olive-trees; though the Tartars have converted it into fields and wretched gardens. However neglected their orchards are throughout the valley, they ſtill afford a delightful proſpect, when ſurveyed from a central hillock ſituated in the vicinity of the ſea; and which likewiſe conſiſts of the decayed calcareous rock. At the ſame time we had a view of three Tartar villages; namely, Miſſokhor, or Müſskhor, on the weſt ſide; Choriſs towards the North, or within the country; and Gaſpoora, or Gaſpra, to the Eaſt. Old and young pomegranate-trees, as well as fig, olive, and laurel-trees ſingly ſcattered over this valley, all prove its favourable ſituation for every vegetable production requiring a warm climate.—The lofty mount of St. Peter now preſents only its declining edge; and the more diſtant high bank of rocks diſappears behind the lower mountains that are covered with wood; and the baſe of which alſo extends, ſo as to form a rocky ſhore.

Behind Gaſpra, where ſome veſtiges of a Greek church, erected of wood, are ſtill diſcoverable, we met with a conſiderable woody mountain, which the Tartars diſtinguiſh by the ſemi-greek name of Kutilln*-ſurimlaré. Its central part conſiſts of the marmoraceous lime-ſtone rock, which forms the upper part of the hill; being diſpoſed in thick layers, abruptly declining towards the North and North-eaſt, at an angle of forty-five degrees. To both ſides of this foſſil, either Weſt or Eaſt, leſs bulky and often very thin ſtrata of a ſchiſtous ſand-

* *Kutilln*, in modern Greek, ſignifies a Spoon.

ſtone

ſtone are attached in the ſame direction as the former. A ſpring, which flows down the mountain, completely divides the horizontal bed of ſandy ſchiſtus from the calcareous rock.

The ſcene, however, now begins to exhibit very frequent changes. Immediately behind the hill juſt deſcribed, there appears the woody promontory of Ayee-Thodor, or Saint Theodore, which extends between deep glens alſo overgrown with wood, till it terminates in the ſea with a rugged point. Very extenſive beds of oyſters are found in its vicinity, at a depth of from thirty to forty fathoms; and the Greek inhabitants of Outka uſually dredge for theſe ſhell-fiſh.—Ruins of a monaſtery are ſaid to be ſtill perceptible on this promontory, as well as on the upper part of St. Peter's Hill.

The next lofty mount is denominated Murgundunoo-Kayaſé. It terminates towards the ſea with ſteep rocks, on the ſides of which the ſtrawberry-tree grows in abundance.—After this follows a craggy hill, ſeparated from the mountainous ridge, ſurrounded with woods, and termed Kanghela, or Ranghela. One of its detached rocks repreſents a coloſſal figure. The ſteep ſides of this mountain are covered with black juniper-trees, the trunks of which are from two to three feet thick: their wood, poſſeſſing the fragrance of that of the cedar, is by the Tartars called Samla-agatſh. Farther, the moſt elegant groups of ſtrawberry-trees, with a blood-red bark and numerous cluſters of white flowers, embelliſh thoſe precipices as far as the higheſt rocks, and produce at ſome diſtance a peculiarly charming effect. Many ſtems of the latter, ſpringing from a ſingle root, frequently attain to the thickneſs of a thigh, and the height of two or three fathoms; but their fruit is, in

the Crimea, uniformly ſmall, and rather inſipid. About the end of April, the ſtrawberry-tree begins to diſplay its bloſſoms on the extremities of the branches, between its beautiful evergreen foliage: toward ſummer, the blood-red colour of the ſmooth ſtems and twigs gradually aſſumes a duſky green or browniſh ſhade. The wood, felled during the winter, is of a pleaſing red hue; and, when employed in veneering, nearly reſembles roſe-wood.

Somewhat farther, in an eaſtern direction, we obſerved, on the right, towards the ſea, a fortified rocky hillock ſituated in a wood, and the more expoſed parts of which are provided with walls erected of looſe fragments of rock. A very narrow path, formed partly by art, conducts to this eminence: on the top of it large maſſes of blackiſh *Dyſodes* are confuſedly thrown together, ſo as to leave conſiderable crevices or interſtices between them. We perceived a current of cold air iſſuing through one of the clefts, which is remarkably wide: it is ſaid to emit vapours during the Winter; and may probably communicate with the ſea. Shepherds aſſert to have ſeen inflammable air, or flames, aſcending thence, and therefore conjecture the exiſtence of a concealed treaſure. On the upper part of the hillock, (which the Tartars diſtinguiſh, like all other ancient fortifications, by the name of *Iſſar*, or ſometimes *Urgenda*,) we met with ſcattered fragments of tiles and earthen pots; and likewiſe, in the ſurrounding valley, with veſtiges of former habitations.—Laſtly, we here noticed uncommonly thick and old turpentine-trees, ſome of which were from fifteen to ſixteen ſpans in circumference.

The

The road now leads through a foreſt, over high ground, into another extenſive valley, in which we again met with a hill ſituated contiguouſly to the ſea; forming terraces as it declines, and in the Tartar language called *Fookl*. Beyond the next eminence, we ſurveyed a large, deep, and circular dale, abounding with wood, and exhibiting a rocky prominence; which the Tartars term *Vagiliſta*, or the Evangeliſt. In our progreſs through continued woods, we croſſed an incloſed meadow, which is ſtill denominated *Papas Tſheir*, or the Pope's Meadow; and, on advancing farther, we diſcovered a fine ſpring, riſing in a deep marſhy tract overgrown with ſedge; and which has retained its original Greek name of Ἁγια, or the Sacred. Both before and behind theſe low grounds, a brown ſchiſtus again preſents itſelf in the deep glens, where it forms only moderate ſtrata.

Our next route conducted us into the very ſpacious valley of Oupka, or Outka, which is encloſed by lofty hills, in the form of an amphitheatre, alternately preſenting eminences and hollow grounds. The dark mountains beyond Yalta abound in excellent foreſts of pine-trees, and are viſible from the heights near Gaſpra; being frequently covered with ſnow, that continues till the month of May. They are watered by two rivulets, namely the Yalta and Utſharſoo. The village of Outka is ſituated in three diviſions on the latter; the deſcent of which, in ſmall caſcades, may be diſtinctly ſeen from almoſt the higheſt part of the mountainous ridge. Although the Utſharſoo is, in general, an inconſiderable brook, yet its wide bed, in the valley over which it rolls with great impetuoſity during floods, may be about ſixty or ſeventy fathoms

in breadth. Here, as well as in all the ſtony beds of the Tauridan ſtreams, the *Tamarix Germanica* grows in abundance; ſo that the Tartars juſtly term it Ouſehen-Agatſh, or the River-buſh; but its ſtems ſeldom, if ever, attain the height of ſix feet.

Outka is excluſively occupied by Greeks, who, together with the other Chriſtian inhabitants of the Peninſula, emigrated to the diſtrict of Mariupol; but who, after the ſubjection of Crim-Tartary to the Ruſſian ſceptre, obtained permiſſion from Prince Potemkin to re-eſtabliſh themſelves in this place. Thus twenty families have ſettled at Outka, in the vicinity of which they dredge for the oyſters frequenting the ſhore in large beds; and, though ſuch ſhell-fiſh are here of a ſmall ſize, yet in point of flavour they are not inferior to thoſe taken on the coaſt of England.

From Outka, or Avutka, we had a view of the high mountains deſcribing a kind of amphitheatre; and ſuch proſpect extends even beyond Yalta. The fartheſt extremity, toward the Eaſt, is the cape of Ayou-dagh, that projects into the ſea at the diſtance of twenty verſts. On this ſide of it is a promontory, called Nikita-Burun, with which the lofty eminences in a manner diſappear at the ſea-coaſt. Somewhat nearer, we perceived two other leſs conſiderable promontories, namely, that of Yalta, and that on which Marſanda is ſituated. All the environs along the ſea-ſhore were, in former times, almoſt excluſively peopled by Greek families.

About the houſes built among rocks, as well as on the banks of the rivulet near Outka, I obſerved the following ſpecies of foſſils:—a kind of wacca, bearing a perfect reſemblance to granitell;

granitell; a black ſchiſtous chert; a black ſlate; a grey lime-ſtone rock with ſpathoſe veins; a hard ſand-ſtone ſchiſtus with a ſmall proportion of fine mica; a brown argillaceous ſchiſtus; and, laſtly, the pudding-ſtone.—In this place, as well as in Yalta, a few ſcattered olive-trees have been preſerved.

Yalta, or Yalita, an ancient Greek colony, is at preſent inhabited only by a few Tartar families. It lies contiguous to the ſea, on a lofty cape which is interſected by a rivulet bearing the ſame name, at the diſtance of ſix verſts from Outka, and of fourteen from Alupka. Its Greek church was accidentally blown up by gun-powder, in one of the late Turkiſh wars; and veſtiges of it are ſtill extant, on a rocky eminence near the ſhore. The rapid brook Yalta, after flowing through a deep glen, here diſcharges itſelf into the ſea. On its higher bank is ſituated the village of Derekoi, in an uncultivated, woody country; and, no farther than five or ſix verſts above the latter place, the waters of this ſtream are collected from five deep and capacious glens between the lofty mountains; and which, according to their ſeries from Eaſt to Weſt, are known by the names of Kuva, Balla, Panaghé, Stamitz, and Temiar. The two firſt named are the principal brooks, the currents of which unite in a foreſt about one verſt from the village of Derekoi; and, immediately above this place, they are joined by the Panaghé, which is the moſt powerful of the ſtreams flowing into the ſea, on the ſouthern coaſt of Crim-Tartary. The environs of Yalta are adapted to the culture of all ſuch vegetable productions as require a warm ſoil and climate. The ſurrounding mountains are amply provided with the *Pinus maritima*, and other trees; though part of the foreſt,

foreſt, on the lofty eminences, was conſumed by fire ſhortly before the year 1794.

After travelling two verſts farther up the rivulet, we arrived at *Derekoi*. Its vicinity preſents one of the richeſt botanical territories in the whole Peninſula. The moſt remarkable plants, which I here obſerved, are the *Ophrys anthropophora*, *muſcaria*, and *Corallorhiza*, the *Serapis grandiflora*, *Satyrium Epigogum*, *Orchis Coriophora* and *militaris*, *Tamus communis*; a beautiful *Aſperula*; and, in the ſtony bed of the brook, a low, though in all its parts very large and reſpectable, *Heracleum* with fetid umbels; the feculent ſmell of which is not unlike that of the diſagreeable *Arum*, on the approach of night. We alſo noticed here a few old cheſnut-trees, which bear edible fruit almoſt every ſummer; and it is much to be wiſhed, that ſo uſeful a tree were generally cultivated. Excepting thoſe in the neighbourhood of Derekoi, there is not a ſingle ſpecimen to be found in the whole country. All the ſpecies of hawthorn, which thrive on the mountains, likewiſe grow here in abundance. Strictly ſpeaking, I have throughout the Crimea met with the following ſeven; namely, one with large ſtems, frequently more than twelve inches in thickneſs, having ſcarcely any thorns, and producing black berries; a ſecond, with brown berries; a third with oblong red berries; then the well-known ſpecies of *Cratægus torminalis*, *Aria*, *Oxyacantha*, and the *Crat. Orientalis* of Tournefort, producing either a bright yellow, or deep red, fruit of an agreeable flavour; and which might be greatly improved by engrafting.

On departing from the dale watered by the Yalta, we travelled over inconſiderable heights toward the valley of Marſanda;

Marſanda; where we again met with the brown and blackiſh ſchiſtus, intermixed with layers of brown, quartzoſe, cryſtallized ſandſtone; though, in our farther progreſs, we obſerved in every direction no other foſſil but the fragments of calcareous rock. On a ſteep eminence near the ſea, between the villages of Magaratſh and Marſanda, we noticed the ruins of an ancient monaſtery. Having paſſed the former on the ſea-ſide, we purſued our route towards the village of Nikita, through a wild country abounding with woods. The three laſt mentioned places were once inhabited by Greeks, who emigrated to Mariupol; and whoſe numerous, neglected gardens have ſince become the property of M. Smirnof, Counſellor of College, in conſequence of an event which it would be improper to relate. Inſtead, however, of granting ſuch lands, as well as other vallies in the South, to various proprietors who have no inclination to undertake any improvements for the benefit of their country, they ought to have been given to uſeful coloniſts, who might be transferred hither from the ſouthern regions of Crim-Tartary. The elevated ſides of mountains here alſo produce abundant pines and other lofty foreſt trees, that are not uſed by the natives; and among which the *Fraxinus ornus* and *Juniperus oxycedrus* are very numerous.

Before we reached the promontory termed Nikita Burun, which projects to a conſiderable diſtance into the ſea, we obſerved, on the left of our road, large calcareous rocks, riſing high above the level of the water; being ſeparated from each other, and ruptured in a moſt terrific manner. Among ſuch clefts, there is one, particularly deep, wide, and dangerous to approach.

proach. It is filled with ſolid, rocky maſſes, from the interſtices of which a cold current of air was diſtinctly perceived. On the mingled fragments, the *Cratægus Aria* was in bloſſom; and ſmall buſhes of elm, ſea-pine, and other dwarf trees, had ſuperficially taken root among the ſtones. The ſtrawberry-tree likewiſe preſented itſelf on the ſides of the rocks.

The promontory of Nikita is a rocky neck of land, extending far into the ſea. It is a continuation of that lofty and rugged mountainous ridge, which is connected with the Alp, or Yaila. The chief component part of theſe heights is the limeſtone rock, that occurs as far as Marſanda. In the centre appears a longitudinal prominence of ſandſtone, cleft in a peculiar manner; and, on the eaſt ſide, we again met with a blueiſh-grey calcareous rock, which is alſo ſcattered over the gentle declivities, leading toward the valley of Yourſuf.

This extenſive and beautiful dale is partly covered with ſhrubberies, and interſected by many deep glens. On its northern ſide, it is bounded by many lofty mountains that become gradually more diſtant from the ſea; toward the Eaſt, by the Ayoudagh, or Bear's Hill, which projects conſiderably into the water: on the coaſt, it forms a round, level bay, from the middle of which a ridge proceeds towards the ſea, and terminates on the ſhore in an angle, with a few fronting ſhelves. At a ſhort diſtance from ſuch cliffs, there is a rock riſing out of the ſea, more than fifteen fathoms high, and divided into two diſtinct points; between which and the Nikita Burun, is another ſmall, round bay, or road for veſſels. On this prominence ſtands the fortified rock of Urſhuf, or Yourſuf, as delineated in the ſeventeenth vignette. The village of the

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ſame name is ſomewhat farther to the Weſt; another, called Kyſiltaſh, with its beautiful gardens, lies towards the country; and a third village, termed Kurkoolet, appears in the Eaſt, at the foot of the Ayoudagh, whence a horſe-road leads over the mountains to Kooguſh. Beſide numerous trenches formed by torrents, there are the two rivulets, Sünarpootan and Artek, which take their courſe through the eaſtern parts of the valley towards the ſea. The foundation of the whole dale appears principally to conſiſt of that deſtructible, brown, argillaceous ſchiſtus, the ſtrata of which are in ſome places diſcernible: they extend almoſt in a ſtraight line North-weſt and South-eaſt, though ſometimes they apparently have a wavering direction.

The rock laſt mentioned is, on its northern ſummit, fortified with an inacceſſible wall; and, about ſix fathoms lower, around a terrace that may be eaſily aſcended from the deep glen, between the two points above alluded to, we met with a battery, probably of Genoeſe conſtruction: it is erected of rough ſtones cemented with lime, about one fathom and a half in thickneſs; and one flank of which has two embraſures for the diſcharge of cannons fronting the bay; while the other is directed againſt the valley, with five battlements. The communication between the two rocks has been ſecured by a wall; and the ſurface at the foot of ſuch eminence likewiſe appears to have been encloſed by a wall, and by round baſtions. Immediately below the battery, we noticed the foundation of a circular tower; whence fortifications of maſonry-work deſcend towards the ſea: here a ſmall but very ſafe harbour has been contrived, by connecting a cliff with an artificial bank or mole. The

ſouthern extremity of the rock, contiguous to the ſhore, is throughout rugged and inacceſſible: it exhibits a blue calcareous ſtone, in irregular layers inclining toward the North; and the ſhelves within the ſea conſiſt of a ſimilar foſſil. Such ſtrata, however, are more diſtinct in the northern part of the rock, where they are caſt at an angle exceeding forty-five degrees, in the ſame direction; though proceeding from Eaſt to Weſt. The mineral itſelf is of a blueiſh colour; emits a fetid ſmell on friction; is interſperſed with ſpathoſe veins, and uncommonly hard. Beſide the fragments diſengaged from the main rock, we diſcovered around its baſe blocks of granite, and a black baſaltic wacca, intermingled with a dark-green ſhirl; which perhaps originate from baſaltes.

Within the fortreſs, the *Hyoſcyamus albus* was flowering in abundance: this plant occurs in no other parts of Taurida, and has probably been here propagated by ſeeds accidentally ſcattered. Both ſcorpions and the gigantic blue *Carabus* were found in this neighbourhood, reſiding beneath ſtones.

On leaving the ſpacious valley of Yourſuf, we croſſed a ridge which connects the Ayoudagh with the lofty mountains; and, after paſſing Kurkoolet, we arrived at the village of Parthenit. The black ſchiſtus between Yourſuf and the Ayoudagh is, in a few places, remarkably interpoſed with pyrites, and partakes of a metallic nature.

The Ayoudagh is a lofty, conoidal, and prodigious hill, abounding with ſteep rocks, and thinly covered with trees: it is ſeparated from the high Yaila, or alpine elevation, by an extenſive valley; and is on the other hand joined to it only by means of the flat ridge before mentioned; in which the brown

ſchiſtus

ſchiſtus covers the lower part. The mount itſelf advances into the ſea: it forms abrupt precipices, in the manner of a baſtion, and produces numerous ſtrawberry-trees on its ſouthern rocks, which are almoſt inacceſſible. Its northern half conſiſts of a grey wacca mixed with ſhirl, diſplaying a greeniſh ſhade, and reſembling ſandſtone, when recently broken; but, in general, dividing like trap into trapezoidal pieces, which externally acquire a blackiſh caſt. On the ſea-ſide, the Ayoudagh exhibits a brown-red foſſil, compoſed of quartzoſe grains that are looſely cemented. Both are thrown together in large, moſtly cuneiform blocks or maſſes, often two or three feet in thickneſs, of various ſhape, and perpendicularly cleft towards the ſea-ſide. This hill commands a proſpect of nearly the whole ſouthern coaſt; and, on account of its altitude and projection into the ſea, it may be ſeen from the promontories near Sudagh, as well as from Gaſpra. On its upper ſurface, the ruins of a Greek convent, defended by a wall, and formerly dedicated to St. Conſtantine and St. Helen, are ſtill diſcernible. The building is ſix fathoms in length, and three in breadth; but the front part meaſures four fathoms. Near the monaſtery, we noticed a marble column lying on the ground, which is five arſhines, or eleven Engliſh feet, eight inches long, and about three ſpans in diameter.

The village of Parthenit is ſituated in a valley immediately behind the Ayoudagh, between this mount and another more eaſtern promontory: it is ſeventeen verſts diſtant from Yalta; and its Greek name appears, in ſome meaſure, to allude to the hiſtory of Iphigenia. The rivulet Takata, on the upper banks of which ſtands the large village of Der-

menkoi, with its numerous gardens, flows through this valley into the ſea, and ſpreads over a conſiderable portion of the ſtrand. All the walls belonging to the houſes and gardens at Parthenit, are erected of the grey or blackiſh ſtone obtained from the Ayoudagh, and which breaks not unlike trap.

The cape above deſcribed confines the bay of Lambat, or Lampad, on its weſtern ſide. The eaſtern promontory, which encloſes this bay in the form of a creſcent, below the village of Kutſhuk-Lambat, projects abruptly into the ſea, with ſtrata of a ſhirly wacca, cleft in the manner of trap-ſtone, and lying obliquely towards the North: a black, partly friable, argillaceous ſchiſtus covers one half of the eminence, and is likewiſe precipitately attached to the ſide of the valley, nearly as far as the Beeyouk-Lambat. The bed of the bay is a brown ſchiſtus; and the weſtern cape, which alſo advances ſteeply into the ſea, diſplays a ſimilar wacca mingled with ſhirl. The *Avena fatua*, *Cynoſurus aureus*, *Ephedra*, *Jonthlaſpi*, and a peculiar kind of *Alyſſum*, were growing on the rocks; where I farther diſcovered a very ſmall common Blue-bottle, which ſcarcely ever occurs in the fields of Crim-Tartary.

After mounting the Beeyouk-Lambat, I aſcended by a dangerous path the declivities of the alpine heights ſurrounding the bay, partly on horſeback, and partly on foot; in order to explore the conſtituent parts of ſuch elevations. Beyond the ſource of the rivulet Lambat, we were obliged to leave our horſes behind, and to climb up the wild foreſt on foot. Above the brown ſchiſtus (the undulating ſtrata of which are in a higher ſituation on the mountains, and flatter than I have ever obſerved them) there immediately appear fragments of a blueiſh-

blueiſh-grey calcareous rock, full of large madreporites, together with traces of very ſmall cochlites or petrified ſhells. Theſe decompoſed foſſils are found at the perpendicular height of almoſt one hundred fathoms above the level of the ſea, extending to the foot of the rocky bank; which here appears to be nearly of a ſimilar elevation, and forms part of the Babugan Yaila, under the name of Magaraſh. Large blocks of baſaltic ſpar were alſo diſengaged from this eminence, between the ſtones of which flouriſhed the *Ornithopus ſcorpioides*. In the gardens of Beeyouk-Lambat, I noticed fine olive-trees, and ſome tolerably large ſtems of the *Crataegus orientalis* or Medlar-tree, which had apparently been engrafted.

From Kutſhuk-Lambat, we were again obliged to quit the ſhore, on account of two prominences extending into the ſea; and one of which is called Bootanee-Kayaſſé. The firſt conſiſts of a grey limeſtone rock, and has probably been precipitated from the rocky alpine terrace, ſo as to produce cliffs in the ſea: one of theſe is called Daſhkema, from its reſemblance to a ſhip. The ſecond cape is compoſed of wacca reſembling trap, to which is attached a black trap-like ſchiſtus. —Immediately after follows the mouth of the rivulet Lambat, near which lie ſcattered, or rolled down toward the ſea, a number of large and ſmall blocks of a peculiar alpine wacca, ſimilar to granitell; but which properly conſiſts of a combination of quartz, white calcareous ſpar, and black horn-blende, or *Talcum corneum*; the laſt forming a fine admixture of nearly equal parts; and the whole poſſeſſing a conſiderable degree of hardneſs. A ſimilar foſſil alſo occurs near mount Ayoudagh.—Through a paſſage, which this ſtream has made between the

the contiguous hills, we could diſtinctly perceive a ſteep bank of grey rock, ſituated on an elevated part of the Alp, and which is known by the name of Kuſh-kaya, or the Eagle's-rock.

Beyond the rivulet, there is a tract of the ſea-ſhore, that exhibits beds of ſchiſtus partly in a ſtrait, and partly in an undulating line. We now again retired from the coaſt, and croſſed a hollow though at preſent dry glen called Kara-Ouſehen; being deeply excavated in the brown ſchiſtus, which interſects the horizontal bed of the foſſil reſembling trap. Here the mountains, that form a projecting angle toward the South-eaſt, in front of the Babugan Yaila, approach the ſhore with ſmall but remarkably broken hills: thus we were under the neceſſity of paſſing a very difficult road, leading over mount Koſtaal, which extends, with its ſtony fragments, in an abrupt manner, to the brink of the ſea, and conſiſts of a very peculiar light-grey foſſil cleft into a great variety of cuneiform and trapezoidal figures, while it is depoſited in bulky layers. This mineral, when recently broken, contains, like the wacca above deſcribed, an evident admixture of ſhirl: it is of a ſcaly, compact texture, interſperſed with dark or brown points, and a large portion of quartz; ſo that it ſtrikes fire with ſteel, and is of conſiderable weight. Its fragments become efflorescent on expoſure, and frequently exhibit a whitiſh or ruſty yellow cruſt, beneath which a dark blue ſtreak is perceptible. A ſimilar ſpecies of ſtone, divided into ſmall pieces, in ſize reſembling ſhip-biſcuits, is found on the mountains of Ural, in the upper diſtrict of the river Ural or Yaik, near Vereehoyaitzk, where it is called by the natives Suckharnoi-kamen, or Stone-biſcuit.

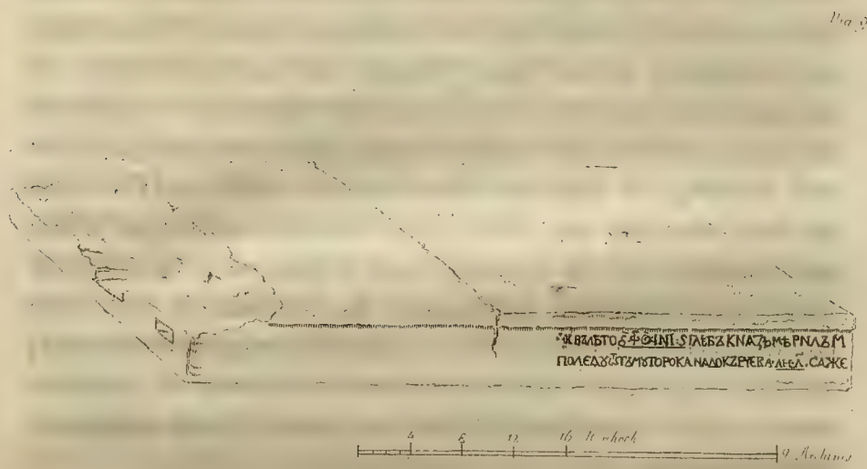
After

After having croſſed theſe ſhattered mountains, we again met with a horizontal bed of brown ſchiſtus, mixed with clay. Its winding ſtrata are in a manner ſpeckled like ſome roots of trees; taking an undulated direction, and extending into the valley of Aluſhta. The whole road, from mount Ayoudagh near Parthenit to Aluſhta, being a diſtance of twelve verſts, preſents beautiful plants and ſhrubs. Among the latter, we met with the *Coronilla Emerus* in abundance.

The extenſive dale of Aluſhta ſeparates the weſtern part of the Crimean mountains, hitherto deſcribed, from thoſe in the eaſtern quarter. Its breadth is about ſix verſts; but its depth does not exceed five, when computed from the baſe of lofty Tſhatyrdag to the ſea-coaſt. This mount, being iſolated by two vallies that ſpread as far as the northern plain, confines one of the latter, and is in a manner diſplaced toward the North; where it appears to be excluded from the ſeries of remarkable mountains. On the weſtern ſide, a cape of nearly ſimilar elevation projects from the eminences in that region; there forming the Babugan Yaila, and ſtretching forth its promontories to the ſhore: on the eaſtern ſide the heights of Temirdſhi, though ſomewhat lower, ſtand oppoſed to the Tſhatyrdag, and their declivities likewiſe reach as far as the ſea; becauſe the whole coaſt, from Lambat, takes a north-eaſterly direction. Between the more ſouthern Babugan Yaila, and the ſteep Tſhatyrdag, both of which are apparently detached from the other mountains, a broad and deep woody dale extends North-weſt to the ſources of the river Alma, which are principally collected from the eaſtern part of the Alpine Babugan, where only a flat ridge, in a line with the Tſhatyrdag, ſeparates the current of

of the waters from the brooks flowing towards Aluſhta. The eaſtern, and leſs excavated valley, lies due North, near the ſources of the river Salgir, between the lofty hills of Temirdſhi and the Tſhatyrdag. Through this plain a tolerably convenient coach-road, leading to Aluſhta, was formerly made by a battalion of chaſſeurs. The rapid brook Temirdſhi interſects the dale laſt alluded to, and diſcharges itſelf into the ſea near Aluſhta. In its vicinity, another rivulet, known by the name of Meſarlik, and coming from the weſtern dale, alſo falls into the ſea, after paſſing the villages of Kotnakhoor and Koobukul, at the foot of mount Tſhatyrdag.

The village of Aluſhta is ſituated between the two laſt mentioned rivulets, on an iſolated height, contiguous to the ſea. It ſtill exhibits veſtiges of an ancient Greek fortification, which formerly had a conſiderable population, together with an epiſcopal ſee. There are yet ſtanding the ruins of three towers, and of a ſtone-wall twelve feet high, and from ſix to ſeven feet thick. A large round tower compoſed the ſouth-eaſtern corner fronting the ſea, and was raiſed on an inclined plane; whence the wall extended in a direct weſtern line, and was here ſomewhat ſtronger, on account of its more gradual elevation. On the north-eaſtern ſide, the wall, being thinner and forming an obtuſe angle, was defended by a ſquare tower ſtanding in the middle of ſuch angle, and by another placed in the northern corner, at the diſtance of about ſeventy paces from the former. The northern and weſtern declinations toward the valley are ſteep, and we here found only traces of walls. The encloſed ſpace is now occupied by a few Tartar huts, rubbiſh, or dung-hills; and there is only part of a tranſverſe wall remaining in the centre.



Journey over the Tſhatyrdag, and through the South-eaſtern Mountains of the Crimea.

DURING the month of May, I made ſeveral excurſions from Akmetſhet over the Tſhatyrdag, the foot of which is, in a direct line, ſcarcely twenty verſts diſtant from that place. When viewed from the plain country, this is the higheſt mount in the Crimea.

The white and recent calcareous mountains, which extend along the Belbek as far as Albat, are, in their breadth from the river Katſha to Beeya-Sala, ſituated between the rivers Salgir and Alma. They are narrower than the ancient emi-

nences; but they approach nearer to the Tſhatyrdag, which, on account of its more northern ſituation, belongs to the latter, and terminate at an equal diſtance of ten verſts from its northern baſis and from the town of Akmetſhet. Although the former mountains occupy a larger ſpace between the Salgir and Karaſſu, yet they are lower and leſs diſſevered; ſo that in theſe environs the Tſhatyrdag, together with the whole eaſtern quarter of the more elevated heights, may be diſtinctly ſeen from Temirdſhi to Sudak. This mount is ſtill more conſpicuous from the ſea-ſide, where it is completely expoſed; becauſe it abruptly declines toward the valley of Aluſhta: hence it may be explained, why the ancient Greek navigators took particular notice of it; and, according to Strabo, diſtinguiſhed it by the name of *Trapezus*, or the Table.

The road, leading to the Tſhatyrdag, proceeds from Akmetſhet up the banks of the Salgir to Sultan-Mamut, the reſidence of Batyr-Aga, a deſcendant of the family of Oirat, who is the moſt reſpectable and opulent Counſellor of State among the Tartar nobility. At his houſe all travellers, deſirous of aſcending the mountain, meet with a hoſpitable reception, as well as with guides and horſes. The country, which we croſſed in our way thither, is bounded by moderate calcareous eminences, and in ſome parts preſents the moſt charming landſcapes. For, not only the ſides of the hills are well covered with luxuriant herbs, but there are in many places fields, cultivated by the inhabitants of the numerous villages that occur on both banks up the Salgir. Among theſe, we noticed the moſt remarkable, about twelve verſts from Akmetſhet, on the left bank of the river, and known by the name of Eſkee-Sarai, or the Old Caſtle,

Caſtle, on account of an ancient fort, conſiſting of an irregular ſquare, encloſed with a wall, and ſtrengthened by four towers, all of which are cemented ſimply with lime, and appear to be of Genoeſe workmanſhip. The village itſelf lies in a delightful ſituation, and has a conſiderable metſhet. In its environs, the *Salvia Auſtriaca* of JACQUIN, and *nutans*, *Teucrium Laxmanni*, *Beta Cicla*, and *Poenia multifida*, are frequent plants; while the *Hordeum bulboſum*, and the common rye-graſs of Crim-Tartary, grow in ſuch abundance on fallow lands, as if they had been ſown by the huſbandman.

About halfway to Mamut-Sultan, in the vicinity of Eſkee-Sarai, the ancient horizontal beds of limeſtone, which in ſome hills are expoſed on the ſurface, evidently paſs under the mountains of cretaceous marl extending to this place, and again riſe toward the anterior eminences of the Tſhatyrdag.

A convenient horſe-road, computed to be ten verſts in length, leads from Mamut-Sultan up the Tſhatyrdag, on its northern ſide. Such route is uſually taken by travellers viſiting this mount, in order to inſpect the abyſs which preſents itſelf on the ſame ſide of the hill, at a conſiderable height; and in which ice remains undiſſolved for a ſeries of years. The hope of finding a greater number of vernal plants in bloſſom, induced me to prefer the ſouth road, and to aſcend the mount from the oppoſite ſide, at another excurſion. I therefore purſued my journey on horſeback farther up the banks of the Salgir. In travelling towards the village of Ayan, along the low country, we obſerved, at the ſide of a ſomewhat abrupt hill, horizontal ſtrata of ſand-ſtone interſperſed with clay, in a South-eaſt and North-weſt extenſion, but declining towards

North-eaſt. Immediately above Ayan, there appeared ſteep, grey, calcareous mountains, with barren rocks, the boundaries of which are moſtly Eaſt and Weſt; ſo that the heights are interſected in the ſame direction. In ſome places, the rock conſiſts of a true *Dyſodes*. Several deep furrows, excavated by rain-water, in the form of ſteps, proceed from theſe mountains into the plain, and on every ſide exhibit a rocky ſurface. Beneath one of ſuch cavities, among hollow rocks, and from a large aperture, the Salgir derives its ſource from a powerful ſpring of cold water, which riſes with a noiſe, above its efflux, in a cavern undermined by the ſnow-water deſcending from high rocky terraces: and there is no doubt, that ſuch ſpring is ſupplied from the interior of the Tſhatyrdag by the water collected from its ſummit and its cavities, after the ſolution of ſnow. Between the rocks of this river, trout are taken in great numbers. The moſſy rocks, about the ſource of the ſpring, produce commonly a viſcous ſaxifrage, of a conſiderable ſize. Beſides the ſmall buſhes of *Ulmus pumila*, we met in the crevices of the rocks with the *Spiræa crenata*, which occurs in no other part of the Crimea: and the *Ceraſtium tomentoſum* is here the moſt frequent flower. Among thoſe growing in abundance, we noticed the *Pedicularis tuberoſa*; an elegant ſmall *Heracleum*, the *Campanula hybrida*, *Aſclepias nigra*, and *Vincetoxicum*, *Geranium lucidum* and *robertianum*, *Aſplenium Ceterach*, and *trichomanoides*; while the *Bryonia* and *Atropa phyſaloides* were thriving between ſhady rocks.

After inſpecting the ſources of the Salgir, I followed the road ſlightly declining towards the village of Tſhavké, which is ſituated about two verſts thence, on the banks of a rivulet

rivulet bearing the ſame name. On proceeding up the ſource of the latter, we firſt obſerved open eminences interſperſed with cultivated fields: theſe were ſucceeded by more conſiderable hills covered with wood, and riſing toward the foot of the Tſhatyrdag. On aſcending ſtill farther, the valley (between this mount, which abruptly declines on its eaſtern ſide, and the mountains connected with the Yaila of Temirdſhi,) becomes progreſſively narrower; and the heights laſt alluded to diſplay along the brook chiefly the ſtratified brown ſchiſtus, which generally ſerves as the foundation of all the principal dales, taking a North-eaſterly direction, and precipitately advancing North-weſt, below the baſis of the Tſhatyrdag. The road then paſſes through the narrow defile called Angar-Bogaſſi; which, between the higheſt part of the Tſhatyrdag and the lofty Yaila, leads into the valley of Shuma, at the ſouthern foot of the former. In the woods I found the *Orobus luteus* and *tuberoſus*, *Smyrnium Oluſatrum*, *Dictamnus*, ſeveral handſome *Lathyri*, and an annual *Allium* of a peculiar kind. In the ploughed fields I noticed, beſide the *Caucalis daucoides* and *latifolia*, which are common throughout Crim-Tartary, numbers of the *Bunium Bulbocaſtanum*, that occurred in no other parts of this peninſula; and the eſculent roots of which are by the Tartars denominated Kodſh-Kardaſh (*Teſtes arietis*): the Balm and *Chelidonium corniculatum* likewiſe grew in abundance. In dry ſhady ſituations of the foreſts, eſpecially among the decayed branches, there alſo appeared a peculiar kind of ſmall dark-brown *Blatta*, totally different from the *Blatta lapponica*. All the Crimean ſpecies of Hawthorn are common in theſe woods, as well as the *Pyrus orientalis*, one of which I met in the

the vicinity of Shuma engrafted on the trunk of an old pear-tree, growing to an unuſual height, and bearing much larger fruit than the low wild trees of this ſpecies generally produce; a convincing proof that this indigenous ſhrub, with leaves of the willow kind, may be greatly improved.

The village of Shuma, or Shumai, ſtands on ſomewhat elevated ground, at the ſouthern foot of the Tſhatyrdag, in a country abounding with ſprings. Among the principal ſources, contributing to form the brook Meſarlik that flows towards Aluſhta, there is one in particular, riſing impetuouſly through a hole within the rocks, which in ſize reſembles a fox's kennel. From the noiſe of theſe ſprings, iſſuing in various parts, the village is ſaid to have received its name. The ſoil is here ſo remarkably fertile, that ſingle ears of wild rye and barley are ſeen growing in every direction. To the North-eaſt of this village lies the conſiderable Alp of Temirdſhi; which, eſpecially at its extreme ſouthern angle, abruptly terminates towards the valley, and there exhibits craggy rocks; but which, in an eaſtern direction, extends to the Karabeé Yaila. On the Weſt-ſouth-weſt, appears the ſtill more elevated Babugan Yaila; due Weſt is the village of Kobukul; towards the North-weſt riſes the Tſhatyrdag itſelf; laſtly, in the South and South-eaſtern regions, we had a view of the ſea and of Aluſhta; toward which place the valley, being bounded by moderate woody eminences, gradually declines to a diſtance of about five verſts.

On the fourteenth of May, after the dawn of a ſomewhat rainy morning, I departed from Shuma, and aſcended the Tſhatyrdag on a warm and uncommonly ſerene day. There is a horſe-road, leading from the village over a long rocky ridge toward

toward the upper part of this mountain, which is nearly five verſts diſtant. The ridge, before alluded to, takes a curved direction from South to North-weſt; and conſiſts partly of grey calcareous rock, and partly of a few obliquely intervening ſtrata, compoſed at firſt of quartzoſe ſand-ſtone, then of a ſolid brown ſchiſtus, and at length of a more bulky layer of the ſame ſchiſtus interſperſed with clay, and occaſionally containing pieces of kidney-formed iron-ore. The upper part of this, as well as of another ridge extending into the valley, and proceeding downward to the ſea-ſide in a line nearly parallel to the former, is at firſt ſhaded with beach and other trees; but, on its higher parts, with thoſe trees only: a fine ſpring purls down the anterior of theſe ridges.—Here, likewiſe, the *Bunium* is very frequent, and the *Polygala grandis* of JACQUIN grows uncommonly beautiful, ſometimes producing blue, though more rarely white flowers.

The upper part of the Tſhatyrdag is impaſſable on horſe-back, being bare, and formed of rocky terraces riſing gradually one above another; the loweſt of which is the moſt conſiderable. Between the higher terraces, there are extenſive tracts, occaſionally excavated, ſo as to repreſent ſemi-globular hollows, in which the ſnow-water accumulates, and ſupplies local ſprings. The ſpecies of rock is uniformly a compact, grey, ſometimes dark, and on friction ſlightly fetid, lime-ſtone; which, in conſequence of its decompoſition, has depoſited large quantities of fragments, both at the ſide of precipices and in the wood: on the top, however, it is leſs diſſevered, being only cracked and diverſified; while the whole rock exhibits a variety of interſections, frequently reſembling characters

characters or letters. The limits of the ſtrata, in ſome of the terraces, evidently proceed in a direction South-eaſt by Eaſt; and North-weſt by Weſt; deviating only a few degrees from the perpendicular line, in their inclination toward the South-weſt. In other terraces, they appear to extend more North-eaſt, and to recede in depth from the perpendicular poſition towards the North-weſt. On the upper platform of the mountain, ſmall round accumulations of rock riſe one above another: between them are vales, ſomewhat excavated, and covered with black vegetable ſoil; but ſome of the hollows on the weſtern ſide were, even in the middle of May, filled with ſnow, at the edge of which the primroſes now only began to vegetate, though they had already flowered in every other ſituation. The whole mount, together with its expanded baſis, may occupy a ſurface of nearly ten verſts in length from North to South; and about five verſts from Eaſt to Weſt. At its greateſt elevation, on both the ſides laſt mentioned, it forms ſteep and abrupt rocky corners projecting above the vallies, eſpecially that of the Alma, ſituated between the weſtern precipice and the Babugan, or the Babylgan-Yaila; at which place it preſents a terrific view, on account of its depth, and of the darkneſs occaſioned by thick woods. The higheſt point of the Tſhatyrdag, however, is towards the Weſt; where it certainly commands the proſpect over the oppoſite Babugan-Yaila; the altitude of which is, in other reſpects, ſcarcely inferior to the upper plain ſurface of the former mount. On the other hand, we could thence not only ſee beyond the Alp of Temirdſhi, and what is termed the Karabeé-Yaila, without interruption, as far as Sudak; but could likewiſe ſurvey the

the whole ſhore extending nearly to Yalta, beyond the intermediate and leſs conſiderable mountains. Towards the North, where this lofty hill declines, it affords very diſtant views over the whole plain country of the Crimea, and the Tarkhanſkoi-Kut; nay, even to the vicinity of Perekop.

When the excellent ſpecial maps of Crim-Tartary were drawn, immediately after its ſubjugation, the height of the Tſhatyrdag was, by the *niveau*, computed to be about twelve hundred feet perpendicularly above the level of the ſea: and, on meaſuring the mount by means of barometers, in Auguſt 1797, from the flat, though lofty eminence on which Akmet-ſhet is ſituated, its altitude above the latter appeared to be ſeven hundred and fourteen feet, ſix inches. The inſtruments, however, employed on this occaſion, were ſubſequently found to be imperfect, and not to correſpond exactly in their reſults.

The higheſt central rocky eminence of the mountain, is the only part where I met with a few ſmall buſhes of the common juniper, the *Evonymus verrucoſus*, and alpine dwarf-willows: no other ſhrubs are diſcoverable on the whole platform of the Tſhatyrdag. Its turfy back exhibits a mixture of ſuch plants as commonly thrive on the Alps and on the Steppes, or in leſs elevated ſituations; a circumſtance, occaſioned by the different expoſure of the rocky terraces and hillocks to the ſolar rays. During the month of May, the following were in flower; namely, the *Veronica Auſtriaca*, *Chamædrys*, and *incana*; *Phleum vaginatum*; *Bromus tectorum*; *Vaillantia*, which is common throughout the Crimea; *Aſperula cynanchica*; *Primula uniflora*; *Lithoſpernum arvenſe*; *Androſace Chamæſyce*, with red and yellow

 umbels;

umbels; *Alchemilla; Hyacinthus racemoſus; Ornithogalum luteum*, and *piloſum*; the *Allium* above mentioned; *Ceraſtium tomentoſum*; a ſpecies of *Geum* reſembling the *alpinum*; *Fragaria veſca*; *Potentilla rupeſtris*; *Filipendula*; *Anemone verna*; *Ranunculus rutæfolius* and *nivalis*; *Sideritis Syriaca*; *Stachys Germanica*; *Phlomis herba-venti*; *Ajuga alpina*; *Lamium*; *Thymus Zygis*; *Thlaſpi burſa*; *Draba muralis*, and *aizoides*; *Alyſſum montanum* and *alpinum*; *Fumaria bulboſa*, and another large ſpecies of the ſame genus, with undivided petals, appearing in the firſt days of ſpring, on the hills in the vicinity of the Karaſſu; *Geniſta linifolia*; *Viola odorata*; *Taraxacum*; *Cineraria alpina*; *Acroſtichum Marantæ*; *Aſplenium Ceterach*, *adiantoides*, and *Ruta*. The deep valley of the Alma, between the Tſhatyrdag and the alpine height of Babugan, is the only region in Crim-Tartary where the *Belladonna* flouriſhes; and which is therefore by the Tartars called Babugan-ohot.—With reſpect to inſects, this mount is viſited only by a few bees, and ſmall butterflies of the common kind. On account of its fine paſturage, however, it is conſtantly frequented, during the ſummer, by horſes and other cattle; becauſe it is not infeſted by vermin. The nights here are generally cool; and the dry ſeaſon ſeldom checks vegetation ſo as to render the ſoil unproductive. One of the principal cauſes of this fertility muſt be aſcribed to the fogs and clouds; which, on the leaſt humidity prevailing in the atmoſphere, attach themſelves to the upper part of the Tſhatyrdag, at firſt ſurrounding it with vapours, and at length covering the adjacent lofty Alp, or Yaila. Hence this mountain is, by the neighbouring inhabitants, conſidered as a barometer, which in ſuch caſes indicates

dicates rain; as, on the contrary, when it appears ſerene, and without any clouds, conſtant fair weather may then be expected.

Having now deſcribed the Tſhatyrdag, I ſhall proceed to inveſtigate the eaſtern half of the various Crimean mountains; which, though divided by a ſpacious valley, apparently extend in an uninterrupted line with the former, as far as Kaffa. They conſiſt, on the whole, of the ſame kind of horizontal ſtrata, as moſt commonly form the weſtern part already ſpecified; excepting that the wacca, mixed with ſhirl, never occurs in them; and that the free-ſtone, being generally depoſited in thick layers, often breaks in large ſheets and maſſes of a rhomboidal figure. Farther, moniliform iron-ore, and pudding-ſtone, are ſtill more common in the ſchiſtous beds; while the whole ground poſſeſſes a ſaline property, which is particularly remarkarble in and about the veins of ſprings. Hence the caper-buſh, that ſcarcely ever appears in the weſtern diviſion, and other plants delighting in a ſoil impregnated with ſalt, are here more general.

The neareſt lofty part of theſe eaſtern mountains is the Alp of Temirdſhi, being ſeparated from the Tſhatyrdag only by a pleaſant woody dale. The former has given its name to an adjacent village ſtanding on ſomewhat elevated ground, whither we travelled on horſeback, along the banks of a fine brook, the ſource of which is in the place itſelf. In the lower tract of the valley, we paſſed over a horizontal ſtratum of a blueiſh argillaceous ſchiſtus, interſperſed with brown layers, in which

deep trenches are formed by rain-water. The oppoſite mountains diſplay, on the edge of the ſchiſtus, a rocky lime-ſtone; and, in the higher parts, a calcareous breccia, containing ſpherical ſtones of every kind of ſtratified foſſil found in Crim-Tartary, eſpecially of ſand-ſtone, though in ſize ſeldom exceeding a cloſed hand. In proportion as we aſcended the foot of the eminences progreſſively riſing above the village, the fragments precipitated from the rocks, and lying along the deſcent of the mountain, on both ſides of the rivulet, became larger and more frequent.

The village of Temirdſhi ſtands in a high ſituation, above the valley and the irrigated fields producing corn and flax, on the declivities. Its houſes are built cloſe under a lofty bank of rocks projecting with numerous rocky points, between which are deep hollows covered with wood. This eminence appears to take a direction from North-weſt to South-eaſt; and is, by an intervening dale, ſeparated from that of the Alp or Yaila extending North-eaſt. Its ſtrata cannot be clearly diſtinguiſhed; though, in ſome places, they likewiſe incline to the North-eaſt, and conſequently bend towards the valley. Prodigious maſſes of rocks have been precipitated from the upper parts, immediately above the village, where powerful ſprings iſſue forth beneath the rocks; and tradition relates that ſeveral of the habitations formerly erected there, have been cruſhed by their fall: ſuch an event may, in ſome meaſure, be explained from the impending ſituation above deſcribed. Even in their preſent ſtate, eſpecially after heavy rains, pieces of rock are ſometimes diſengaged, and roll down towards the village; but they are not attended with dangerous effects,

on

on account of the larger maſſes lying in front, and preventing their farther progreſs. Hence, ſome Tartar families have boldly erected their dwellings in the midſt of detached rocks, that uniformly conſiſt of the pudding-ſtone already mentioned, which is cemented with calcareous matter, and in a few places exhibits a regular ſtalactite. Some of theſe maſſes are from ſeven to eight fathoms in ſize, and occaſionally have interſtices between them; lying one above another, particularly near the ſource of the rivulet that is encloſed beyond the village: thus grottos appear beneath the rocks; one of which, ſhaded by an old walnut-tree in front, forms the moſt charming hermitage imaginable. This romantic place, in conſequence of the operations of nature, that have cauſed its preſent external appearance, reſembles the diſſevered rocks of Alupka in miniature; but the ſite and open proſpect of the village are incomparably more pleaſant. The fields in its vicinity commonly produce the *Ruta linifolia*, and the rare *Chelidonium hybridum*.

The mountain, at the lower part of which ſtands the village of Temirdſhi, is, like the whole border of the Yaila, interſected from South to North; and the foot of the rocky front is covered, to nearly one half of its height, with coarſe particles of earth and rock; on which I found the *Aſtragulus Poterium*, *Anthyllis cornicina*, a fragrant *Dracocephalum*, and other handſome plants. My friend HABLITZL maintains, that he here likewiſe diſcovered the *Statice Echinus*, which, however, has not occurred to me in the whole Crimea. The layers of pudding-ſtone at the South-weſtern corner, which front the ſea and the valley of Aluſhta, incline, like the ſurface of the Alp, at an angle of forty-five degrees towards the North-eaſt.

They

They run beneath a ſtratum of a more complete ſand-ſtone, of nearly equal thickneſs, perpendicularly cleft, and on its upper part forming conical ſerrated cliffs, that project with obtuſe points. On directing the voice againſt the latter, they return a very diſtinct double, and ſometimes triple, echo. Within the breccia, numerous quartzoſe pebbles were obſervable, and only a few ſmall fragments of granite; but, among all the rounded ſtones contained in the ſame foſſil, there are none exceeding the ſize of a man's head. Here I farther met with a peculiar kind of punctured wacca diſpoſed in a congeries; then with a layer of a mineral completely ſimilar to black trap-ſtone; and, laſtly, with a few pieces not unlike black lava, having ſmall cellular interſtices, which are uniformly filled with a whitiſh matter reſembling zeolites.—Where the pudding-ſtone terminates, the *Aſtragalus Poterium* alſo diſappears.

During the whole morning of my viſit to Temirdſhi and its neighbourhood, it rained with little intermiſſion. All the ſhowers proceeded from the Babugan Yaila; which, as well as the Tſhatyrdag, became towards mid-day enveloped with terrific black clouds, ſpreading in the courſe of the afternoon over the Yaila of Temirdſhi, in the form of a wreath.

On leaving Temirdſhi, I proceeded down the valley toward the ſea; and, quitting the road that leads over the height to Beeyouk-Ouſehen, I deſcended a ſteep terrace near the ſmall brook Yehdehv, in order to travel along the ſhore to Kuru-Ouſehen. The whole of this extenſive valley, which ſeparates the ridges declining toward the ſea in a South-eaſtern direction, is wooded with oak and other umbrageous trees. In all its hollows,

hollows, the brown, often reddiſh like iron, argillaceous and ſandy ſchiſtus is diſcernible; though it frequently alternates with black layers, extends moſtly to the Eaſt and North-eaſt, and abruptly terminates at the North-weſt: ſuch ſtrata are, however, in ſome places, promiſcuouſly arranged.—On the terrace fronting the ſea, where we perceived the air uncommonly warm, we met with numerous, often bulky, turpentine-trees, but ſtill more copiouſly with the black cypreſs-juniper, that forms a conſiderable part of the woods covering the ſides of mountains; and which frequently meaſures three quarters of an arſhine, or twenty-one inches in diameter. Along the whole coaſt, as far as Tuyak, we alſo noticed the *Rhus Coriaria*, which the Tartars denominate Sari-agatſh, literally Yellow-wood, or ſometimes Sumach; on account of its excellent citron-coloured wood, that is alike uſeful for the purpoſes of dyeing and veneering. The Caper-buſh, the *Cotinus*, *Aegilops caudata* and *ovata*, *Elymus caput Meduſæ*, and other graſſes* and plants, delighting in a ſaline ſoil, grew here in abundance. A peculiar variety of Tamariſk likewiſe flouriſhed in the hollows, and on the beds of rivulets: it has only three or four anthers in each flower, ſuch as I have nowhere obſerved in the weſtern mountains. Every buſh produces ſeveral ſtems, frequently exceeding ſeven feet in height, and obliquely inclining toward the ground: the branches are loaded with flower-ſpikes, ſo that the whole ſhrub appears to be covered with white and reddiſh bloſſoms.

* From the roughneſs of their bearded parts, however, all theſe graſſes are very injurious to cattle, and eſpecially to horſes; as, by adhering to the mouth and throat of theſe animals, they frequently prove fatal.

From

From the brook of Yehdehv above mentioned, to another more capacious rivulet, termed Tut-terek; farther, from the latter to Aluſhta in a weſterly direction, being a diſtance of about two hours ride on horſeback; the whole lower edge of the ſea-coaſt conſiſts of brown ſchiſtus: its layers extend in various directions, not unlike the veins in variegated wood; and occaſionally form large ſcaly bodies, the internal ſtructure of which reſembles that of laminated iron-ore; but their ſize is frequently from one to ſeveral fathoms in diameter.

This convenient horſe-road proceeds to a conſiderable diſtance along the ſea-ſhore, as far as the *Karowl-obo*, or Guard-Hill; which, with its obtuſe edges, cloſely borders on the ſea, and has received its name from a picquet of Kozaks ſtationed there. On account of an event that happened at the ſame time with the dreadful ſubterraneous convulſion at Kut-ſhuk-koi, the former hill is alike remarkable. It may be clearly perceived on the *firſt* prominence, that its ſoft ſchiſtous layers have been protruded towards the ſea. Hence, its incumbent, harder rocky parts appear broken into fragments, and diſplaced; while two intervening layers of limeſtone are likewiſe promiſcuouſly diſſevered, and the ſoil preſents numerous diſruptions and crevices, which are not yet completely filled; ſo that our horſes trembled with fear, and were in a manner reluctantly compelled to paſs this eminence, as though they were apprehenſive that the ground would not ſupport them. The *ſecond* prominence is compoſed of ſchiſtus, the undulating diſpoſition of which reſembles the waves of the ſea: and, laſtly, the *third* conſiſts of ſolid quartzoſe ſand-ſtone, forming ſtrata of conſiderable thickneſs. Behind theſe, we reached the village of

of Kuru-Ouſehen; on the contiguous corn and flax-fields of which the *Beta Cicla*, and *Chelidonium hybridum*, were remarkably numerous.

From the village of Kuru-Ouſehen, we travelled over another promontory, called Mangana, to the village of Kutſhuk-Ouſehen, being a diſtance of three verſts. The latter is ſituated in a narrow valley, between the lofty cape before mentioned, and another mountainous ridge terminating at the coaſt, and which is by the Tartars denominated Kutilla. From the eminence laſt alluded to, we could diſtinctly ſurvey not only the vales of Kutſhuk and Kuru-Ouſehen, but had likewiſe along the ſhore an open proſpect of all the mountains and capes projecting into the ſea; namely, towards the Eaſt as far as Sudagh and Koos, together with the Tſhoban-Kalé, of which we had a clear view; in a weſtern direction, we deſcried the Tſhatyrdag, the Babugan Yaila, and even the diſtant Ayoudagh. This elevated ridge extends, with gradual declenſions, from the lofty Karabeé Yaila in a ſouthern courſe towards the ſea; from which the latter is not very remote. On account of the ice-pits that contain ſnow throughout the ſummer, ſuch Yaila is particularly remarkable. Similar parallel ridges, proceeding down the Alp, are obſervable behind the village of Tuyak, at which we arrived after croſſing the larger ridge firſt mentioned, and travelling three verſts from Kutſhuk-Ouſehen. The eminences conſiſt chiefly of brown and blackiſh kinds of ſchiſtus; in which deep trenches, formed by rain-water, interſect the high mountains. In one of theſe ſteep hollows ſituated on the weſtern ſide of Tuyak, and by the Tartars denominated Tzimavl, there appears a ſand-ſtone re-

ſembling chert, with numerous veins of quartz, in which handſome cryſtallizations frequently occur. In proportion as we deſcended the deep glen toward the mountains, the ſtrata of this free-ſtone inclined more precipitately; ſo that they at length ſtood entirely on edge, or even aſſumed a contrary poſition.

The agreeable and uncommonly warm valley of Tuyak expands on both ſides of a conſiderable rivulet, which ariſes from the conflux of the waters collected in two deep glens, and is by the natives called Shik-Terek. It forms near the coaſt an oblong fertile plain of a moderate extent; and which is converted into fine fields for the rearing of flax, by irrigation. The culture of this commodity commences at Aluſhta; and moſt of the dales, being artificially watered, produce it to ſuch perfection, that it is highly valued on account of its length and ſuperior quality. All the flax-fields are, with great care, divided into narrow beds; between which ſmall furrows are contrived for draining the ſuperfluous water. From this branch of induſtry the Tartars derive a principal part of their maintenance.

As the gravelly plain around the ſource of the Shik-Terek is encloſed with hedges, and ſecured from the incurſions of cattle, I met in this place with many excellent plants. Along the ſtrand, in particular, I noticed the *Andrachne telephioides*, *Croton tinctorium*, *Cleone ornithopodioides*, *Daucus muricatus*, *Anchuſa Italica*, *Bupleurum junceum*, *Centaurea Crupina*, and a variety of beautiful graſſes in great abundance. Like Kutſhuk-Ouſehen, the village is ſituated on a riſing ground of the valley: its houſes are erected in ſucceſſion one above another, and are partly

partly hewn into the rocks. In this, as well as in ſimilar warm dales, we obſerved a large graſs-hopper with ſtreaked eyes, reſembling the *Gryllus Tataricus;* and which was already furniſhed with complete wings in the month of May; though it occurred only flying ſingly among the buſhes.

I cannot, with certainty, ſtate any particulars reſpecting the nature of the country ſituated between the Tuyak and Uſkut, a tract of about ten verſts along the ſea-coaſt; as I have accidentally had no opportunity of viſiting ſuch diſtrict. If I may judge from a ſuperficial view of its mountains, they appear throughout to conſiſt chiefly of horizontal ſtrata of clay and ſchiſtus, likewiſe extending to the Eaſt, as far as Kutlak. A powerful ſtream, by the Tartars named Kanaka, is ſaid to deſcend about half way from the lofty Alps into the ſea: in autumn, or after heavy ſhowers, its bed is frequently about thirty fathoms wide; but, during the ſummer, in a dry ſtate. The extenſive alpine height, termed Karabeé-Yaila, terminates in a point towards Uſkut, at which place I arrived from the eaſtern ſide; and the mountains are, due north of this village, between two of the largeſt hills of the whole chain, interſected by a dale, expanding in a direct line from North to South; widening conſiderably towards the ſhore; and ſerving to conduct the rivulet Akfortha, or Uſkut-Ouſehen, to its efflux. Here the great eminences towards the Weſt become progreſſively narrower, and are no longer diſtinguiſhed by thoſe broad alpine flats already deſcribed.

Before I proceed in my farther account, I ſhall briefly notice the valley of Uſkut; and, in order to communicate a more intimate knowledge of the mountains, it will be uſeful to

deſcribe their interſection, which may be perceived on the very ſteep and dangerous road, leading in a northerly direction from Uſkut to Karaſſubaſar, though only paſſable by Tartar arabas, or two-wheeled carts drawn by oxen. This diviſion of the heights is one of the moſt inſtructive, with regard to the geology of the Crimea.

The valley, in which the populous village of Uſkut lies at ſome diſtance from the ſea, expands towards the coaſt; where there is a kind of road for the convenience of ſhipping. The whole dale is provided with ſprings, and contains many vineyards; which the Tartars, however, cultivate chiefly on account of the grapes: theſe are carried to the market of Karaſſubaſar, where ſeveral of the inhabitants, and eſpecially the Jews, convert them into wine of an inferior quality; becauſe the fruit there produced is almoſt uniformly of a late ſort, and has a hard ſkin. From the heights around Uſkut we deſcried weſtwards the Ayoudagh with the projecting Nikita-Burun; then the mountains of Aluſhta; and, at a leſs diſtance, the lofty Karabeé-Yaila, behind which appears mount Tſhatyrdag: ſo that we could diſtinctly ſurvey the ſouthern coaſt to the diſtance of about ſixty verſts.

The very inconvenient road, leading tranſverſely over the mountains from Uſkut to Karaſſubaſar, can be paſſed only by arabas. It extends upwards of thirty verſts, when computed in a ſtrait line, and proceeds directly to the North up the valley, from which the rivulet above alluded to flows rapidly down the heights; though it diſappears beneath the pebbles,

pebbles, without reaching the ſea-coaſt: ſuch dale interſects two woody eminences, namely that of Arpat on the right, or towards the Eaſt; and that of Skala on the left, or towards the weſt. From their expoſed ſituation, theſe two mountains, as well as the Tſhatyrdag, are the firſt that can be diſcovered from the Steppe of Perekop. The Arpat, which here preſents high rocky ſummits, is the moſt conſiderable, and forms a connected chain with the mountains of Kutlak, towards the Eaſt; while the Skala conſiſts of an iſolated height, covered with rocky elevations. In the vale we frequently met with the *Crucianella anguſtifolia*, *Aſperula cynanchica*, *Minuartia*, *Scutellaria orientalis*, *Verbaſcum Boerhavii*, and other beautiful plants. The road leads up the foot of Mount Skala, where the valley becomes progreſſively deeper, very narrow, and is watered by deſcending ſprings. At firſt, uniform ſtrata of argillaceous ſchiſtus are perceptible; though, at length, a ridge of grey calcareous rock appears to be incumbent on the former, even in the valley itſelf.—The ſtructure of the mountains, however, eſpecially thoſe layers which compoſe their greateſt elevation, may be more ſatisfactorily ſurveyed from the ſpot, where the road paſſes by the rocky ſummits of the Skala, and attains nearly its higheſt point. The firſt was a bulky ſtratum of ſoft pudding-ſtone, the pebbles of which were ſo looſely connected by a reddiſh-brown clay, that they crumbled between the fingers; their colour being probably derived from a mixture of red ochre and bole. This layer is about fifty arſhines in thickneſs: like ſeveral others, that will preſently be deſcribed, it takes a direction from South-weſt to North-eaſt, nearly following the courſe of the eaſtern mountains, and ſinking deeper under

under ground towards the latter. Next ſucceeds a remarkable eminence compoſed of calcareous ſtone, apparently projecting with pointed rocks on both mountains: ſuch foſſil is irregularly cleft into large maſſes, and contains numerous fragments of ſpar, but no veſtige of petrifactions. Behind it, we again obſerved a layer of breccia about thirty-five arſhines thick; then a ſmall elevation of lime-ſtone rock inclining towards the North, at an angle of forty-five degrees; now another ſtratum of pudding-ſtone meaſuring eight arſhines; farther, a bed of calcareous rock which, near the breccia, is blended with rounded ſtones; then a ſtrong layer of calcareous pudding-ſtone, eighteen arſhines thick; and, upon this, a bed of ſandy ſchiſtus fourteen arſhines in bulk, which inclines almoſt perpendicularly, and extends from Eaſt-north-eaſt to Weſt-ſouth-weſt. Now follows another maſſy ridge of lime-ſtone rock, from which fine ſprings iſſue in different places. Laſtly, on the very ſurface of the foſſils compoſing the dale, we again met with the brown and grey argillaceous ſchiſtus: it is interſected with a thick layer of a dark grey *Dyſodes;* extends, together with the ſchiſtous beds, nearly Eaſt and Weſt; and declines at an angle of about forty-five degrees towards the Arbat. All theſe ſtrata appear almoſt uniformly to continue over the ſummit of Mount Skala, and likewiſe to reach the oppoſite eaſtern mountains through the intermediate valley.

Another dale, bordering on that laſt mentioned, commences at the higheſt part of the road, immediately after paſſing the ſtratum of *Dyſodes:* it lies in a ſloping direction to the North and North-weſt; is wooded with beech; and exhibits throughout layers of clayey ſchiſtus; of which ſeveral hundred appeared alter-

alternately on the ſections we paſſed, in our way to Yeniſala. This valley afterwards expands between gradually declining mountains, and collects from different ſources a brook that contributes to form the Tunas, one of the ſtreams combining with the great Karaſſu.—As the mountains diminiſh in ſize, the alternate beds of ſchiſtus and clay alſo become progreſſively thinner. At a ſmall diſtance from the village of Yeniſala and the corn-mill belonging to that place, the Tunas interſects a grey calcareous foſſil many fathoms thick; declining towards North-weſt, and exhibiting diſtinct layers that are from one arſhine to a fathom in thickneſs, together with ſome veſtiges of petrifactions. On both ſides of the rivulet, which here appears to have formerly been dammed up by the rocks, and to have ſubſequently forced its way through them, the latter preſent broken and rounded maſſes that contract the valley in the manner of a gate, and thus occaſion a ſtrong current of air through the deep paſſage. The higheſt rocky eminence on the left or weſtern ſide, reſembles a prodigious round tower; and is, by the Tartars, called Kuſh-kaya, or the Eagle's Rock.

The village of Yeniſala has a Greek church in a good condition, though it is abandoned by all the families of that nation. The Tartars, at preſent inhabiting this place, have erected only an indifferent houſe of prayer. Among the ſtones of their buildings, we noticed numerous conglomerate bodies of broken ſhells. On proceeding down the banks of the Tunas, as far as the village of Baſhi, the beds of lime-ſtone become gradually thinner, till they terminate at an angle of thirty degrees; and the hillocks expand into gentle ſlopes.—The road now conducted us to the great Karaſſu; which,

like

like the Salgir, iſſues from the cavity of a rock in the vicinity of Baſhi: on its banks we obſerved the Artillery Barracks, that are juſtly decried on account of their unhealthy ſituation, and the palace erected for the reception of the late Empreſs. Here we could diſtinctly perceive the ſtrata of cretaceous marl incumbent on the level and ſolid beds of lime-ſtone; and, though the former appear to be remarkably low, when compared with thoſe in the back ground, yet, towards the ſteppe, and eſpecially in front of the deep valley containing the town of Karaſſubaſar, they repreſent conſiderable mountains, which occupy and ſurround the whole ſpace between the great and little Karaſſu: all theſe eminences, however, form ſteep and lofty declivities on the South ſide; but, towards the North and North-weſt, they imperceptibly decline towards a plain ſurface.

Although the town of Karaſſubaſar is in itſelf a place of mean appearance, and its ſtreets are filthy, yet, when viewed from the lofty ſhore, it produces a charming effect. The proſpect, communicated in the thirteenth plate, is farther enlivened by the magnificent *Taſh-Khan*, one of the principal mercantile halls; by ſeveral metſhets; and a garden ſurrounded with numerous poplar-trees, formerly belonging to General de Roſenberg, but lately granted to the College of Phyſicians, for raiſing officinal plants.

After this digreſſion, I ſhall reſume the deſcription of the connected heights along the ſouthern coaſt of the Crimea. Beyond Uſkut, the ſchiſtous eminences covered with hillocks, and in a manner diſſected by natural trenches for conducting rain-

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Bedford Sculp.

rain-water, continue along the ſea-coaſt; and their ridges are combined with the lofty chain of mountains; being diverſified by hollow grounds abounding with ſprings, the water of which is thence diſcharged into the ſea. One of the narrow ridges, being interſected by a deep glen proceeding from the higher parts of Arpat, in a direction almoſt parallel to the ſea, and terminating at the rivulet Uſkut, is peculiarly remarkable on account of an old Greek caſtle, ſituated on its ſteep rocky extremity that projects towards the ſea, about ſeven miles from Uſkut, or nearly half-way to Kapſokhor; and to which the Tartars have given the name of Tſhoban-Kaleé, or the Shepherd's Fort. It conſiſts of a ſtrong round tower, meaſuring twenty arſhines in diameter, and upwards of four fathoms in height; having on the top an open cupola that may be aſcended by a flight of ſteps, with an entrance raiſed above the ground. Although the tower is damaged by a large fiſſure, yet, being cloſely built of free-ſtone, its walls ſtill remain ſolid. A pile of earth, probably occaſioned by digging up the foundation, lies in front of the entrance, and is overgrown with the *Aſtragalus Ponticus**, which occurs in no other ſituation: near ſuch pile appears a round baſtion, on the north-weſtern ſide of the tower; where a wall, two arſhines thick, is erected of rough ſtones without any mortar; forming an angle; then proceeding to the diſtance of about a hundred paces along the northern declivity of the promontory (which has no rocky precipices, but is covered with juniper-buſhes); and terminating at the ſteep corner next the ſea.

* *Vid.* "*Spec. Aſtragalorum,*" *Tab. XI.*; a ſpecies very nearly related to the *A. Narbonenſis.*

This wall formerly ſerved to defend the ſpace behind the tower, on the ſide above ſpecified, but is at preſent partly demoliſhed: contiguouſly to it, we noticed in one place ſeveral tombs that appeared to be of Greek origin. The advanced ſituation of the cape, on which the tower ſtands, in a very conſpicuous place, affords not only a view of it from diſtant heights in every direction, but the ſcite alſo commands a proſpect over a conſiderable part of the ſouthern coaſt, both towards Kaffa and Aluſhta.

In the vicinity of this tower, I obſerved the *Rhus Coriaria** and *Cotinus* thriving in abundance, as well as low buſhes of the *Cratægus Aria:* on its platform grew the *Piſum maritimum*, *Clypeola Jonthlapſi*, and other plants.

Nearly in the direction of Tſhoban-Kaleé, we met with the large Tartar village of Arbat, or Arpat, which is ſituated on a high inland part of the mountainous declivity: above this place, the eminences, known by the ſame name, form a lofty mount, termed Poſtrofil; afterwards extend in a North-weſtern curve towards the village of Veron, and uniformly preſent conſiderable hills.

On the other hand, the ſtrata of clayey ſchiſtus continue along the ſea, and are frequently diſtorted; though they ſometimes alſo remain in their natural poſition, and take the uſual direction. Here likewiſe it is probable, that the mountains have formerly protruded into the ſea, to the extent of ſeveral verſts in breadth. A few ſaline ſprings iſſue, in various parts,

* Its red, ſub-acid berries are by the Turks and Tartars uſed in broths, to which they impart an agreeable flavour. This ſhrub is the proper *Sumach* employed by the latter in tanning leather; though it is frequently confounded with the *Rhus typhinum*.

from

from the deep hollows that interſect the coaſt, as well as from the ſhore itſelf: at preſent, however, they were in a dry ſtate, and had depoſited a conſiderable quantity of Epſom ſalt; which, having parted with its water of cryſtallization, was ſince converted into powder. Directly in front of Kapſokhor, there appears a bulky ridge of ſand-ſtone, bordering on the ſea, in ſtrata diſpoſed above each other; being from three and a half to four and a half feet in thickneſs; extending Eaſt-ſouth-eaſt, and abruptly terminating towards the North-eaſt; though the whole maſs is cleft ſo as to exhibit numberleſs oblique and tranſverſe fiſſures.

The fertile valley of Kapſokhor* is encompaſſed by hills, and delightfully ſituated at the diſtance of one verſt and a half from the ſhore; opening towards the bay, which forms the coaſt between the promontory of Tſhoban-Kaleé, and the advanced mountains ſeparating this place from Kutlak. Although it abounds with gardens and vineyards, yet the wine here produced is of inferior quality; becauſe no attention is paid to ſelecting and planting the beſt ſorts of vines. The bay above alluded to is, however, one of the moſt favourable to the buſineſs of fiſhing, as there are no rocks to impede the progreſs of the nets.—The rivulet Shelen (on the banks of which lies a village of the ſame name, in a high ſituation, about nine verſts from the coaſt) diſcharges itſelf into the ſea, near Kapſokhor. The wealthy Tartars of the latter place poſſeſs fine tracts of manured and irrigated fields, extending below the lofty ſea-ſhore, where they rear both flax and cucumbers. Theſe, as well as other productions, are carried to the market of Karaſ-

* *Kapſokhor* is a Greek word, ſignifying a place deſtroyed by fire.

ſubaſar, by a direct road leading over the mountains, and paſſable by arabas. In the low grounds, madder grows in a wild ſtate; and cotton might here be planted to great advantage.

On departing from the valley of Kapſokhor, along the coaſt, we ſhortly met with another dale, which is interſected by the rivulet Vorun, in its paſſage from the mountains to the ſea. Among the upper rocks of theſe eminences are three villages, ſituated at a conſiderable elevation; namely, Vorun, Aiſeres, and Veron. After aſcending the heights to a moderate diſtance, among thickets of the *Tamarix Germanica* and *tetrandra*, the horſe-road conducted us through a deep tranverſe hollow, denominated Süggül-Tepé, or the Stag's Glen, and thence up a very ſteep acclivity. Here the alternate layers of an iron-brown and grey clayey ſchiſtus appeared ſtrangely diſtorted, and often in very ſingular proportions. Similar to thoſe ſtrata occuring towards Aluſhta, the foſſils in this place form a great variety of angular or curved figures; and, on a large ſcale, exhibit the ſame appearance as the compreſſed, ſcaly, and kidney-ſhaped iron ore in ochreous minerals diſplays in miniature; with this difference only, that ſeveral concentric ferruginous lamina are here encloſed one within another, and the intermediate ſpaces are filled up with the grey, crumbling, argillaceous ſchiſtus. Theſe rhomboidal maſſes frequently meaſure from two to three fathoms in diameter; and their formation cannot be eaſily explained.

From the extremity of the glen above mentioned, we paſſed into another which ſpreads in a ſoutherly direction between two hills, called Kütür-Obo and Tültſhik-kaya, or the Fox's Mount,

Mount, and becomes progreſſively wider towards the ſea. Both the valley and the latter mount are wholly covered with black juniper-trees, reſembling the cypreſs: their trunks grow erect, and in ſize often exceed the human body, but have apparently been ſtunted by lopping; ſo that they are ſeldom more than nine or ten feet in height. From the abundance of ſuch trees, the glen has received the name of Kara-arditſh-dereſſi. The ſtrata of brown ſchiſtus and clay, found in this dale, ſometimes extend to the Eaſt-north-eaſt, ſometimes due Eaſt and Weſt; while they incline towards the South, both up and downward, at an angle of forty-five degrees. Such layers are diſpoſed with a ſimilar irregularity in the Fox's Mount; which, for more than half its height, conſiſts of the ſame foſſils as compoſe the Kütür-Obo; excepting that a thick ſtratum of hard ſand-ſtone is interpoſed in the centre of the argillaceous ſchiſtus, occurring near the baſis of the former hill. The lofty Tültſkik-kaya is extremely ſteep and difficult to aſcend; its ſides and back producing ſcarcely any other vegetable than the black juniper, and the dwarf grey oak: the upper part of it conſiſts of very bulky layers of that hard foſſil, which is almoſt excluſively employed for mill-ſtones in the Crimea; and ſuch beds are precipitated towards the South. This, however, is only the fronting northern part of the genuine mill-ſtone mount, known by the name of Kutlak; which takes a ſouth-weſterly courſe towards the ſea, in the form of a ſharp ridge: and, though interſected on its eaſtern ſide by a deep trench occaſionally filled with rain-water, it is nevertheleſs connected with thoſe extenſive woody eminences, called Pertſham-kaya, and expanding towards Sudagh. The

ridge,

ridge, laſt alluded to, divides itſelf in a weſterly direction towards the ſea, with a ſlight curve, into two branches; namely, one to the North, that is both lower and ſhorter, terminating in the valley; while the other is more elevated, and proceeds to the coaſt, where it protrudes two capes, one of which is again higher and more bulky than the other, with its incurvation, forming together a figure not unlike tongs. The former of theſe lofty branches affords a very diſtinct view of the Karabeć-Yaila, the Tſhatyrdag, and even of the Ayoudagh. Between the promontories before mentioned and a ſteep rocky hill, termed Kuſhkaya, which is ſituated in the ſea near the vale of Sudagh, there is the harbour properly called Sudagh-Leeman: its bottom conſiſts of clay, and is therefore fit for anchorage.

The large mill-ſtone mount is, like the ſmaller one, interſected near its baſis by layers of clayey ſchiſtus, which likewiſe form a few eminences in front. The greater part of it, however, is compoſed of a ſolid ſand-ſtone ſchiſtus; the ſtrata of which, running Eaſt-north-eaſt, and Weſt-ſouth-weſt, incline at an angle of forty-degrees, or ſtill ſteeper, to the South-eaſt; are diſcernible throughout the whole deep glen above deſcribed; and extend as far as the oppoſite woody mountains. On its ſummit, the creſt or ridge has the form of an acute angular roof, and conſiſts of projecting maſſes of a hard genuine mill-ſtone; the chief component parts of which are ſmall quartzoſe pebbles, mingled with a few diminutive kidney-ſhaped lumps of argillaceous ſtone, and combined by means of a quartzoſe, ſomewhat calcareous cement. The layers of this foſſil are from nine to twenty-eight inches in thickneſs, and lie beneath a bed

of

of ſand-ſtone, varied with diminutive pebbles. The tranſverſe clefts are perpendicular; but the ſeparations of the ſtrata incline to an angle of forty-five degrees. On the oppoſite ſide of the ſea, ſomewhat lower than the moſt elevated ridge, the grey calcareous rock is evidently incumbent on the mill-ſtone: while the mountains, ſituated along the coaſt in the vicinity of Sudagh, generally contain the former mineral. In the lower part of the deep valley, near Sudagh-Leeman, we diſcovered the ruins of an ancient Greek monaſtery dedicated to St. George.

The mill-ſtone obtained from the ſmaller mountain, however, is of inferior hardneſs, and contains a greater admixture of argillaceous ſtony particles: it is dug out by the Tartars of Kutlak with uncommon labour, then rolled down the hill, hewn into a proper ſhape, and ſold at different prices, though never for leſs than thirty or forty rubles a pair. The appearance of ſome of theſe ſtones, which on the whole are of an indifferent ſort, led me to hope that I might, in the environs, poſſibly meet with granite. But, after a cloſe examination, I was convinced that ſuch kind of foſſil belongs to the claſs of horizontal ſtratifications occurring in the Crimea; as is likewiſe the caſe with a ſimilar mill-ſtone procured from the lofty eminences near Stila, and which is even leſs valuable than the former.

The village of Kutlak lies, at the diſtance of about ten verſts from Kapſokhor, in a valley between the heights producing the mill-ſtones above deſcribed, and thoſe which riſe towards the chain of mountains beyond Aiſeres and Veron. The dale is of conſiderable extent; is encompaſſed with moderate hills;

and

and partly planted with vineyards; which, however, yield only an inferior wine, that cannot be preſerved. Beſide the Fox's Mount, already noticed, on its ſouth-eaſtern ſide, this vale is bounded by the following remarkable elevations: Towards the North-weſt, directly above the village, there appears a ſteep rocky eminence, termed Köyerdſenn, and conſiſting of the ſolid grey calcareous ſtone; to the North-eaſt is another, called Tſhakalkaya; being apparently compoſed of pudding-ſtone, but the upper part of it forms two prominences above Aiſeres, each of which again terminates in two rocky points, denominated Emdſheten-kaya, from their having ſome reſemblance to teats. Laſtly, to the Eaſt is the very expanded Pertſham-kaya, with its numerous hillocks, accumulated chiefly by ſtrata of argillaceous ſchiſtus. Its foot is watered by the rivulet Karagatſh, flowing through a vale that leads to Sudagh.

The road, conducting to Sudagh, proceeds for about ten verſts chiefly in the direction of the rivulet laſt mentioned, between the extenſive Pertſham-kaya (conſiſting of ſchiſtus alternating with breccia), as well as its woody part, named Kara-agatſh, and the oppoſite northern mountains, that are not only more rocky and diſſevered than the former, but alſo diſtinguiſhed by the lofty protuberance of calcareous *Dyſodes*, known by the name of *Kaplaren-Kayaſſi*. Beſide ſuch foſſil, the latter eminences alternately exhibit the pudding-ſtone with layers of clayey ſchiſtus, and veins of moniliform iron-ore; while the ſtrata run from Eaſt-ſouth-eaſt to Weſt-north-weſt, and terminate towards the South-weſt.—Following the current of the Karagatſh, we croſſed a valley planted with vines, and which is called Ayee-Sava, after a deſolated Greek church; till we at length

length reached the beautiful vale of Sudagh, that likewiſe abounds with vineyards, and deſerves a more particular deſcription.

On account of its excellent wine, the dale of Sudagh is juſtly celebrated. It extends from the ſhore to the mountains, in a direction nearly from South to North, being upwards of three verſts in length, and two verſts in breadth, where it is divided by an intervening eminence, termed Hydatly, and then continues in a more contracted ſhape towards the northern village of Tarakatſh, to the additional length of three verſts; but, to the Weſt, or towards Kutlak, it expands to the breadth of two verſts between mountains, and is connected with that of Ayee-Sava. Throughout the whole extent, it is embelliſhed with orchards and vineyards; though only the lower part of the dale, which forms an oval ſurface perceptibly declining towards the South, is thus expoſed to the ſolar rays, and produces a wine of ſuperior quality: as, on the contrary, the upper and narrower glens, that partly ſlope towards the North, and are partly deprived of the morning or evening ſun by the adjacent hills, afford a harſher liquor, which ſcarcely holds the fourth place among the wines of Crim-Tartary.—The copious rivulet Soukſu, after deſcending from mountains to the diſtance of at leaſt thirteen verſts, flows through the large valley into the ſea. In its courſe, it is joined by the ſmall brook Karagatſh proceeding from a collateral weſtern dale; but which, during moſt ſummers, is in a dry ſtate. Both ſtreams, however, eſſentially contribute to the fertility of theſe vallies; as the water is conducted in canals throughout the vineyards, and is judiciouſly employed for their irrigation. Without ſuch means, indeed, the rearing of that noble plant, in a hot

climate, and in a dry marly ſoil, could not be ſucceſsfully purſued. Of this ſubject, I propoſe to treat more minutely in a ſubſequent ſection, entitled: "On the culture of the vine in Crim-Tartary."

Although the mountains, that ſurround the dale of Sudagh, are not among the higheſt of Taurida, yet they are uncommonly diſſevered, ſteep, and therefore, at firſt ſight, conſiderably larger, than they would appear with more gradual acclivities. They preſent an aſſemblage of various minerals; in conſequence of which the hills exhibit diverſified figures. This valley is, on its eaſtern ſide, contracted by a barren, round, lofty hill, termed Altſhak-kaya, and forming cliffs within the ſea: it conſiſts of the marmoraceous lime-ſtone, which the Tartars uniformly denominate Kokatſh, or the Blue Rock: on the weſtern ſide, the vale is bounded not only by a ſtill higher conoidal mount, called Kuſh-kaya, or the Eagle's Rock, compoſed of a ſimilar foſſil, and being covered with pine-trees on its more gradual northern declivity, while every part expoſed to the ſea is inacceſſible; but likewiſe by another rock that is ſeparated from the preceding by a deep narrow glen; has alſo a ſteep verge towards the ſea; and on the ſummit of which is ſituated the ancient Genoeſe fortreſs of Sudagh. On withdrawing from the ſhore farther into the country, we obſerved, on both ſides of the valley, extenſive mountains partly wooded: in a weſterly direction lies the Pertſhamkaya; and on the Eaſt is another, by the Ruſſians called Golaya, or the Naked Mount, together with ſeveral adjacent hills, that are connected with its baſis. Towards the North, the proper vineyard-grounds of ſuch vale are confined by

by a moderate ridge, known by the name of Gridatly, which has the form of a creſcent; is compoſed of alternate layers of breccia and ſand-ſtone; and, by intercepting the ſolar rays, greatly contributes to improve the grapes raiſed in this lower tract: the ridge, here alluded to, again forms a chain with the heights extending on the northern ſide of the dale Ai-ſava. Farther to the North, however, along the valley of *Tarakatſh*, there are two other lofty mountains; the firſt of which appears above the village of the ſame name, with projecting rocks of breccia, in a creſted ſhape; whence it has received the name of Tarakatſh, or Cock's-comb-rock: the next is in an oppoſite quarter, on the weſtern bank of that rivulet; conſiſts of a grey calcareous mineral, and is denominated Baka-taſh, or the Frog's Rock, on account of a detached ſtony maſs being in a manner ſuſpended on its bare and ſteep back, ſo as to reſemble, at a diſtance, the figure of a frog in a ſitting poſture. Thus we could, in the environs of theſe vallies, ſucceſſively diſtinguiſh the different forms which each of the ſtratified foſſils in the Crimea exhibits in the reſpective mountains: a tolerable idea of ſuch configurations may be acquired by inſpecting the two landſcapes given in the fifteenth and ſixteenth plates; the former of which repreſents mount Tarakatſh, with the adjacent dale and village of the ſame name; while the latter exhibits a view of the Kuſhkaya and Pertſhamkaya, two weſtern hills contiguous to the ſea, as well as of Fort Sudagh.—The whole breadth of the ancient ſtratified mountains, in a ruptured ſtate, may be computed at about twenty verſts in the vicinity of Sudagh; where they are joined by the more recent calcareous eminences, near the brook Indal: of

which circumſtance I ſhall have occaſion to ſpeak in the ſequel.

Each of the principal hills, before enumerated, deſerves ſeparate notice, on account of their individual peculiarities.—Of the whole chain, Mount Kuſhkaya is the firſt that becomes covered with moiſt clouds wafted from the ſea, and which frequently ariſe during ſerene ſummer days, but more commonly in the ſpring and autumn: they alſo ſpeedily envelope the ſummit of the Pertſhamkaya. When theſe vapours ſettle around the eaſtern lofty hill Golaya, and deſcend into the valley, they are in ſuch caſe moſtly ſucceeded by rain.

The grey calcareous rock, ſupporting the fortreſs of Sudagh, and compoſing the Kuſhkaya, is of the ſame nature as that of Mount Altſhak-kaya, which is ſituated on the eaſtern ſide of the valley. Its thick ſtrata are generally bent, according to the ſhape of the hill, like the ſhells of an onion, though rather hollow one above another; and conſiſt of a hard, but fiſſured grey rock, which affords excellent lime. They occaſionally contain detached ſpecimens of large madreporites and milleporites, in a very changed ſtate; ſometimes alſo entrochites, but no veſtiges of marine animals. Contiguous to one of ſuch madreporites, I found particles of a black petrified charcoal. In a few places within this mineral, there appear to large and ſmall cavities, ſome of which are diſcernible on the ſurface; for inſtance, I took particular notice of ſuch a hole within a rock, delineated in the ſixth vignette, together with the Greek church and tower there erected. This hill is ſituated between the fortreſs of Sudagh and the mountains riſing towards Kuſh-kaya. Numerous ſmall interſtices between the

the rocky foſſil occur on the Altſhak-kaya; where they are filled with white, ſhort, but obviouſly ramified coralline excreſcences; the extremities of which are frequently in a manner blunted: they are attached to a whitiſh calcareous cruſt, apparently poured over the ſtony ſurface, and nearly reſembling the *Millepora calcarea**. In the laſt mentioned hill, we alſo noticed a few horizontal veins of a ſolid, ſlightly yellowiſh, calcareous ſpar, that breaks in rhomboidal maſſes, and exhibits various colours according to different ſituations.

The extenſive ridge Golaya occupies a ſpace of ſix verſts, in its progreſs to the ſhore, and is connected in a line with the analogous Tokluk-Syrt, of which I ſhall treat in the continuation of the preſent ſection. The former is parted from the Tarakatſh by a broad rain-water-trench; and its alternations of ſchiſtous foſſils are not unlike thoſe of the Pertſhamkaya. The Golaya projects with a very high rocky ſummit, and alſo forms ſeveral other leſs elevated protuberances through the ſtrata of ſand-ſtone, by which it is interſected: the lower part is diſtinguiſhed by its long ridges, that terminate towards the ſea, and are divided by deep hollows conducting the rain-water, ſo as to give them the appearance of expanded fingers. This prodigious chain of mountains is towards the Eaſt, between the villages of Tokluk and Koos, ſeparated by an intermediate valley from a ſimilar maſſy eminence, termed Booyouk-Syrt. The moſt elevated portions of the former conſiſt partly of thick maſſes of ſand-ſtone cleft into large flags, and ſquare thin columns, often exceeding ſeven feet in length; partly of a ferruginous, brown, more or leſs friable ſchiſtus;

* *Pall. Elench. Zoophytor. p.* 265, *ſp.* 163.

and

and partly of a grey crumbling clay, inſerted between thoſe layers, and which is likwiſe interſperſed with veins of kidney-formed iron-ore, running parallel to the ſchiſtous ſtrata. The courſe of theſe, as well as of all the layers clearly diſcernible in the rain-water trenches, is, like that of other horizontally diſpoſed foſſils, which form the mountains around the vale of Sudagh, in general nearly rectilinear from North-eaſt to South-weſt; but they abruptly decline at different, moſtly acute angles towards the North-weſt, or even ſtand totally inverted. While the higheſt ridges and prominences are compoſed of the more bulky free-ſtone, the hollows and vallies are evidently waſhed through the beds of clayey ſchiſtus, and the valley of Sudagh itſelf appears to be excavated within the marly ſtrata of the latter: for they are not only viſible in every part of its riſing border, but alſo at the foot of the Pertſhamkaya, where this ſtratified foſſil, eſpecially in the deep glens, diſcovers a ſtrongly ſaline impregnation. Laſtly, in the wide tract of ſuch argillaceous mineral, we obſerved very conſiderable and uncommonly rich veins of red, nodular iron-ore, and ferruginous clay, extending in parallel lines; from which valuable iron might doubtleſs be ſmelted.

The grey ſand-ſtone of this neighbourhood is, for the moſt part, a compact, very hard and ſounding foſſil, which burſts with violence when expoſed to the fire, and is ſo thoroughly mingled with ſiliceous matter, that, on breaking it, few traces of its arenaceous ingredient can be diſcovered. The plates or ſlabs, obtained from quarries, are frequently from ſeven to ten feet and a half in length; from fourteen to fifty-ſix inches in breadth; and of various thickneſs, ſometimes meaſuring only

only a few inches. They are uſefully employed for building wine-cellars and bridges. In the ſame layers with the plates, there are found columns of a ſimilar length; and, though often ſcarcely nine inches ſquare, they afford very convenient land-marks, and are alſo by the Tartars converted into tomb-ſtones. Columns reſembling the former likewiſe occur in leſs conſolidated beds of ſand-ſtone; in which we obſerved black ſcattered parts of vegetable bodies; and which often ſeparate into lamina. In ſuch caſe, the mineral here alluded to is of a marly or calcareous texture.

Theſe ſchiſtous mountains are farther remarkable on account of their beautiful and peculiar plants. At the foot of the Pertſhamkaya, we met with an elegant white-flowering *Hedyſarum*, the *Aſtragalus lanatus*, and *Dracocephalum cuniloides*; while the back of Mount Golaya produced great numbers of the *Cheiranthus odoratiſſimus*, and *Aſtragalus utriger* (*macrocarpus*), which grow in no other part of the Crimea.—The valley alſo preſents many rare vegetables; ſuch as the *Illecebrum capitatum*; *Onoſma Tauricum*; *Herniaria hirſuta*; *Hedyſarum Tauricum*; *Seſeli gummiferum*; *Salvia Habliziana*; *Scutellaria orientalis*, with yellow and red bloſſoms; *Lotus ſiliquoſus*; *Eupatorium Ponticum*; *Vicia Bithynica*; *Alcea roſea*; *Capparis*; *Verbaſcum Græcum* (which is cut down by the Tartars; and, after being deprived of its thorns by means of a moderate fire, the ſweetiſh branches of this ſhrub afford an agreeable fodder for cattle, during the exigencies of winter, when it is conveyed by cart-loads to their homeſteads) and *veſicarius*; *Zygophyllum Fabago*; *Harmala*; *Salſola ſedoides*, *ericoides*, *tamariſcina*, and *brachiata*; *Polycnemum*

mum oppoſitifolium; Scabioſa gracilis; Centaurea Picris, ſolſtitialis, and *montana; Tordylium maximum; Smyrnium perfoliatum; Echium altiſſimum; Satyrium hircinum; Equiſetum nigrum* and *giganteum*; but, along the ſhore, we noticed the *Bunias Cakile; Crambe maritima; Verbaſcum pinnatifidum; Convolvulus Soldanella* and *terreſtris; Eringium maritimum; Salſola Tragus; Cenchrus racemoſus*; and ſeveral others. Among the moſt conſpicuous ſhrubs were the *Pyrus*, and *Cratægus, orientalis*; wild roſe-buſhes that frequently attain the height of nearly two fathoms; and the *Jaſminum fruticans*. Indigenous vines luxuriantly ſprouted on the banks of rivulets, in every direction; and the *Tamarix tetrandra* is here very frequent. The bulbous roots of the *Scilla hyacinthiodes*, *Ornithogalum Narbonenſe*, and of the *Hyacinthus paniculatus* and *racemoſus*, are in ſome places ſo abundant, that a ſpade, thruſt into the ground, will almoſt certainly turn up one of ſuch bulbs, or the tubercles of the *Lathyrus tuberoſus*.

The ancient Genoeſe fortreſs of Soldaya, which has borrowed its name from a valley, is ſituated on a detached rock, very ſteep on all ſides, eſpecially on that next the ſea. Its vertical ſurface is oblong, and declines in a northern direction; but is more elevated towards the ſhore. On the borders, this fort is ſurrounded with a thick and high wall, which is farther ſtrengthened by ten towers, partly round and partly ſquare. The former, however, is diſcontinued at the ſea-ſide, where the rocks precipitately riſe; yet here alſo we found a wall, extending from one of the lower towers upwards as far as the watch-turret, erected on the higheſt part of the hill; and in which pipes

pipes are placed, probably for the purpoſe of conducting the rain-water into deep, capacious, vaulted ciſterns of excellent maſonry-work; and which ſtill exiſt in the lower part of the fortreſs. Only one convenient road leads from the North-weſtern corner up the eminence, between lofty towers, likewiſe defended by an outwork. On ſeveral of the towers and walls, which are partly in a ruinous ſtate, there formerly were numerous inſcriptions, with raiſed Gothic characters elegantly hewn in ſtone; but many of theſe monuments of antiquity have been pilfered, ſo that a few only now remain, together with a *bas-relief* exhibiting the figure of St. George. The principal number of ſuch inſcriptions are faithfully delineated, explained, and hiſtorically elucidated in a particular work, lately publiſhed by the learned Genoeſe ODERICO *. When I firſt viſited this place, the walls of many edifices, decorated partly in the Gothic ſtyle, were yet ſtanding; but moſt of them have ſince been demoliſhed, and employed for raiſing barracks within the precincts of the fortreſs. At preſent, there is only the large and handſomely arched cathedral remaining on the eaſtern declivity of the town, together with the towers and the ſurrounding walls.

A Tartar village, with a metſhet, formerly ſtood at the foot of the Soldaya; but many of its inhabitants emigrated, on the occupation of Crim-Tartary by the Ruſſians; and thoſe who ſtill continued here, have lately been induced to remove to

* "*Lettere Liguſtiche, oſſia Oſſervazioni critiche ſullo ſtato geografico della Liguria cino ai tempi di Ottone il grande, con le Memoire ſtoriche di Caffa, ed altri luoghi della Crimea, poſſeduti un tempo da Genoveſi, e ſpiegati di Monumenti Liguri quivi eſiſtenti, dell' Abbate Gaſparo Luigi Oderico.*"—Baſſano, 1792, large 8vo.

other ſituations, in conſequence of the building of barracks *. On the weſtern ſide of this fortified hill, in a deep glen, we obſerved the Greek church with its high tower, as repreſented in the ſixth vignette. It is ſituated on a detached rock, at the baſis of which there is a cavern or grotto fronting the Eaſt.

Immediately below the Soldaya, the ſea forms a ſmall harbour encloſed by a ſeries of ſhelves. The Genoeſe port, however, properly was the Sudagh-Leeman abovementioned, when deſcribing the mill-ſtone mount of Kutlak; ſuch haven being bounded by the hills of Kuſh- and Pertſham-kaya, near which ſtood a church, or kind of convent, as has already been ſtated. Similar churches, or hermitages, were anciently eſtabliſhed in ſeveral parts of the valley of Sudagh, but they are now in a ruinous ſtate. I have before noticed one at Ai-ſava, ſituated on the northern ſide of mount Pertſham, in the vicinity of a fine ſpring. Another of the ſame deſcription is built on the intermediate curve, between the large and ſmall prominence of mount Golaya, near a powerful brook, the ſource of which riſes from the more conſpicuous hill. Its walls are ſtill in good condition; and being likewiſe dedicated to St. George, it is viſited by the modern Greeks, who reſort hither by way of pilgrimage. A horſe-road leads along the rivulet laſt alluded to, over the mountains, in a ſtraight line to the village of Tokluk; the diſtance of which, from the vale of Sudagh, is leſs than five verſts by ſuch direct path.

* The author has on this, as on many other occaſions, omitted to ſtate the *real* motive of ſuch emigrations. It is therefore open to conjecture, whether the Tartars, little accuſtomed to *military diſcipline*, were terrified, like other free nations, at the idea of *barracks*; or whether they were averſe to render the perſonal ſervices required of them by their new maſters, for the conſtruction of theſe *unpopular* fabrics.—*Tranſl.*

A very

A very few habitable dwellings have hitherto been erected between the vineyards, throughout the valley of Sudagh. In thoſe ſeized by Prince Potemkin, but which have ſince reverted to the crown, he had commenced the diſtillation of brandy on an extenſive ſcale, though it is at preſent neglected. A large wine-cellar, with two vaulted partitions, meaſuring twenty fathoms in length, and nine fathoms in breadth, was at the ſame time conſtructed of free-ſtone, on a gentle eminence. Above its vaults was a room appropriated to the wine-preſſes, together with the neceſſary utenſils. The cellars were calculated to hold at leaſt ſix hundred pipes, or caſks, in which many thouſand eimers of wine could be depoſited. This fabric, however, is at preſent unoccupied; though it ſtill remains in good condition.

From the valley of Sudagh, a convenient horſe-road croſſes the mountains. Of theſe, as well as of the heights extending to the plain, I propoſe to give an account in the ſequel. I ſhall now proceed to mention the vallies ſituated along the coaſt, and to deſcribe the remaining hills that border on the ſhore as far as the bay of Kaffa, by which they are interſected. There are four vallies; namely, Tokluk, Koos, Otuus, and Karadagh. The diſtance from Sudagh to Koos may, according to the uſual carriage road, be computed at rather leſs than fifteen verſts; that from Koos, by way of Otuus, to Karadagh, at nineteen; and from Karadagh to Kaffa, at ſixteen verſts.

There are two roads leading to Koos. The more convenient one for carriages proceeds acroſs a valley, which conducted us from the village of Taraktaſh, between the mount of that name, the ſucceeding one called Sari-Kaya, (both preſenting rocky

ſummits,) and a third hill termed Tokluk-Syrt, at a conſiderable diſtance from the ſea, to an oppoſite dale abruptly declining towards that of Koos, between the ſchiſtous Tokluk-Syrt and the rocky Porſſuk-Kaya. In our progreſs through a hollow ground, we paſſed an encloſed well, and afterwards croſſed a horizontal bed of pudding-ſtone. The greater part of this road, however, extends over ſchiſtous heights that are interſected by a few rocky eminences conſiſting of ſand-ſtone and breccia; and which, like all the horizontal ſtrata in the eaſtern part of the mountains, run in a direction towards the South-eaſt.

The other more difficult road advances from the valley of Sudagh, at a ſmall diſtance from the coaſt, over the northern baſis of the lofty Altſhak-kaya, which projects into the ſea, and exhibits a round top. It then deſcends between the mount and the contiguous Altſhik-Syrt towards the ſea, following ſometimes the courſe of the ſhore, and leading by different tracks, either by the way of Tokluk, or in a ſtraight line, to Koos. On this journey, I met with various geological objects that deſerve to be noticed. The Altſhak-kaya, being compoſed of the grey calcareous rock above mentioned, is on its eaſtern ſide, where a deep glen proceeds towards the ſea, in a manner interſected to the height of two-thirds, nearly from South to North: adjacent ſtrata of ſand-ſtone and clay, horizontally diſpoſed, form its whole eaſtern foot, and likewiſe diſplay, in the vicinity of the lime-ſtone, numerous veins of ſpar.—A moderate counter-eminence, ſituated beyond the hollow ground, preſents on the ſea-ſhore evident ſtrata of clay, which are ſeparated by parallel layers of ſand-ſtone. The crevices of the latter

latter are frequently incruſted with calcareous ſpar; being from one ſpan to upwards of ten feet in thickneſs; extending ſometimes in a ſtraight line, at others with ſerpentine inflections; riſing almoſt North-eaſt by Eaſt, and North-north-eaſt; and ſinking precipitately towards the horizon. The firſt of the large beds of ſtone, which terminates at the ſhore, conſiſts of whitiſh-grey ſtrata of ſand-ſtone, alternately interſperſed with bulky and thin or ſmall maſſes of ſpar; having likewiſe intermediate layers of looſe ochre with ſpathoſe cavities, in which were depoſited large, flat, kidney-formed ſpecimens of a beautiful *Ludus Helmontii*. I alſo found, between the layers of this foſſil, a compreſſed piece of blackiſh petrified wood, about the breadth of two expanded hands, being in a manner divided into ſplinters, and intermingled with ſpar: ſimilar traces of woody particles were farther obſervable in ſome of the ſand-ſtone beds. The adjacent ſtratum of clay contains a few diminutive and ſcattered pieces of ſelenite, ſuch as are often diſcovered in the horizontal layers of that foſſil. Another bed of a hard mineral, extending ſomewhat more to the Eaſt, reſembles the ruins of a wall erected of free-ſtone. Its ſtrata incline almoſt perpendicularly, though ſometimes rather converſely. They conſiſt of irregular accumulated ſquares, not exactly fitted to one another; and are in the interſtices, as well as on the ſurface, covered and encruſted with a matter, that is apparently a compound of ſandy ſchiſtus and mire. Encloſed within ſuch maſs, ſerving the ſame purpoſe as the mortar of a wall, we remarked a whimſical mixture of broken belemnites, or finger-ſtones, lying together in their fragments; flat impreſſions of ammonites of the breadth of a hand; and

ſmall

ſmall ſhells of the *Oſtrea Jacobæa*, a ſpecies of teſtaceous fiſh which ſtill exiſts in the Black Sea.

It cannot be doubted, that the beds of ſtone above alluded to have originally been formed beneath the waters of the ſea, in a *horizontal* poſition; and that the wood, occurring in them, has thus been compreſſed. What extraordinary phenomenon of nature, therefore, has diſplaced the whole maſs of theſe layers, of which mountains are compoſed to the extent of many miles, and all of which reſt nearly in a parallel ſtate, like thoſe of horizontal ſtratification? By what natural event have they been placed contrary to their former arrangement, ſo as to appear in very ſteep declivities, or ſometimes perpendicularly raiſed, without conſiderably diſordering the paralleliſm, or decompoſing even thoſe layers of ſoft clay? There is, I confeſs, ſomething inexplicable in their origin, or rather in the preſent condition of ſuch ſtrata.

On proceeding ſtill farther to the Eaſt, near the borders of the ſea, the coaſt is from three to five fathoms and upwards in height; being irregularly diſſevered, and the lower part being, for nearly four-fifths of the whole elevation, compoſed of yellowiſh and grey layers of loam or clayey mire; ſome ſpots of which, towards the bottom, are of a light dove-blue colour. In its undulating direction that approaches the horizontal line, it is interſperſed with a few thin layers of ochre and nodular iron-ore; while it is interſected with thin veins of ſpar running obliquely in various directions, and frequently in the form of a fan. This layer of clay appears to have been furrowed into ſmall trenches by the undulating motion of the water, at a time when it was covered by the ſea. Its inequali-

inequalities, however, are filled up with a later and completely horizontal ſtratum, which the ſea has, by alluvion, depoſited upon the old ſoil. Such bed is from one to two fathoms in thickneſs: it extends into the country at an inconſiderable breadth, generally having lowermoſt a bed of cloſely cemented pebbles mingled with teſtaceous fragments, and often alſo a congeries of ſhells beneath, in a tolerable ſtate of preſervation. On its upper parts, likewiſe, there is moſtly a layer of ſimilar concrete pebbles. Nevertheleſs, the greateſt portion of this modern ſtratified maſs conſiſts of marine ſand; and in the midſt of the whole, or about the ſucceſſive tranſitions of the foſſils, we obſerved thin layers of ſhells, and indeed uniformly ſuch as are ſtill diſcovered in the Black Sea.—In thoſe places, where the ſea has undermined the incumbent ſofter clay, this recently formed bed of ſtone preſents large broken pieces of wacca, which are ſcattered even in the water. On advancing farther, the lower ancient minerals exhibit the texture of ſand-ſtone; riſe in a particular ſpot above the ſurface of the new alluvial ſtratum, which there terminates; then in another place imperceptibly decline towards the ſea, in a ſouth-eaſterly direction; but, for the moſt part, they diſcontinue to the North-weſt, and occaſionally in an abrupt or precipitate manner. In more diſtant ſituations, the old layers have entirely been ſwept away through broad hollows extending towards the ſea; ſo as to exhibit only a few iſolated hillocks, which have apparently been ſurrounded by water. At length we met, at the diſtance of a few verſts from Sudagh, about the middle of the bay, with the modern horizontal ſtratum, conſiſting of ſea-ſand, mixed with a congeries of teſtaceous ſand and half-broken ſhells;

ſhells; the whole being combined with calcareous matter. It is ſituated between the rocky promontories which, on the ſide next Sudagh, produce the Altſhak-kaya, but on that of Koos exhibit the hilly ridge of Booyouk-Syrt; while ſuch recent foſſil itſelf projects with two flat necks of land, the lower ſtratum of which is on a level with the ſea, and almoſt entire throughout its whole bulk, without any modification; eſpecially in thoſe places where it reſembles a pudding-ſtone, conſiſting of the larger kind of rolled pebbles. Its conſtituent parts are, either ſand-ſtone, or a grey and blackiſh calcareous rock, being the moſt frequent of the ancient ſtratified foſſils; or, likewiſe, very copious, brown-red, nodular pieces of iron-ore, that are often ſcaly and hollow, being arranged in lines within the ſoft beds of clay; and, laſtly, a few quartzoſe pebbles, the ſurface of which is ſlightly rubbed off. A ſimilar congeries of foſſils was, in every direction, evident along the ſea-ſhore. The intermediate horizontal or obliquely running layers contained ribbed, cordate ſhells, as well as the common creſted ones, ſmall ſpecimens of the *Oſtrea Jacobæa*, and *Tellinæ* of different kinds: they are tolerably well preſerved, being partly in an entire, and partly in a broken ſtate, accordingly as the ſea has depoſited them; and forming the tranſitions between moſt of the ſtrata. This newly ariſen mineral bed ſupplies excellent free-ſtone, which has already been employed in building the wine cellars of Sudagh: it alſo affords a new proof, that the waters of the Black Sea were formerly higher than they are at preſent; and it is probable that ſimilar inſtances will, at ſome future period, be diſcovered along its ſhores.

The

The adjacent dry and ſaline plain, which is in a few places ſtill inundated by the high billows, and likewiſe the reſpective eminences, ſituated at ſome diſtance from the coaſt, exhibit no veſtiges of this horizontal ſtratum; but, in all ſituations deſtitute of vegetable ſoil, there appear in a manner fluctuating, or even inverted, beds of clayey, ferruginous brown, or ſand-ſtone ſchiſtus, and, occaſionally, alſo the rough calcareous rock. Such is the nature of the whole arid, ſaline tract, in which the village of Toklyk or Tokluk lies, together with its vineyards, about four verſts diſtant from the ſea, by a deſcending road: the latter yield a palatable liquor, and are ſeparated on the Eaſt-ſouth-eaſt ſide from the dale of Koos by the Booyouk-Syrt; and, on the North and North-eaſt, by the Tokluk-Syrt, the ſtrata of which properly paſs through this region: towards the Weſt, they are bounded by the Altſhak-kaya; and, in the ſouthern quarter, by the ſea-ſhore.

On an eminence occurring in theſe environs, between the coaſt and the village of Tokluk, there is a remarkable rock, meaſuring ſeveral fathoms in height, viſible at a conſiderable diſtance, and conſiſting of vaſt maſſes of diſſevered lime-ſtone wacca; ſome of which continue nearly in their natural poſition, while others are inverted. Among the Tartars, it is known by the name of Paralam-kaya, or the Broken Rock; and appears to be a projecting point of a former ridge compoſed of ſuch foſſil. A few hundred paces to the South-eaſt of the latter, on an arid plain ſurrounding the hillock, we took notice of a ſingular and apparently very ancient cemetery, which differs from any other diſcoverable in Taurida, excepting that in the valley of Koos; and is therefore not of Tartar

origin. Firſt, in a ſtraight line nearly due Eaſt and Weſt, and thirty-two paces long, there are about ten tombs, encloſed above ground with flat ſtones, which are placed in the ſoil on their edges, and in a manner divided into compartments. Four of theſe ſepulchres are ſquares of four arſhines, or nine feet four inches; but five others, though of a ſimilar length, are only two arſhines in breadth, and conſequently oblong. Their ſucceſſion is irregular; and, in two places, there is an intermediate ſpace of two feet four inches. The following is the order in which they are diſpoſed from Eaſt to Weſt, as well as their reſpective diſtances from each other:

2, 1, 4, 1, 4, 2, 2, 4, 3 $4\frac{3}{4}$, 2, 2, arſhines.

At their ſouthern extremity, ſome of theſe monuments have probably been provided with a larger ſtone; and, at the diſtance of almoſt two fathoms to the South-weſt of the row above ſpecified, we met with another ſeries of three detached tombs. Towards the eaſtern end are, a low hillock ſurrounded with ſtones, and two iſolated ſquares alſo encloſed with flags ſtanding on edge; but which, on their eaſtern ſide, exhibit a larger ſtone in an erect ſituation. The Tartars ſuppoſe theſe burial-grounds to belong to a former colony of Jews; though it may, with more probability, be conjectured that they originate from another ancient, and not very numerous nation.

The road to Toklyk takes a circuitous courſe along the ſhore, on account of the many rain-water hollows that deſcend from the barren Tokluk-Syrt. It diſcovers, for the moſt part, a clayey ſaline ſoil, and throughout the deep glens we obſerved the horizontal beds of argillaceous ſchiſtus interſperſed with

with a ſimilar ſandy foſſil; abruptly declining towards the North-weſt; ſometimes ſtanding on edge; frequently exhibiting uniform ſtreaks and layers of kidney-ſhaped iron-ore; and in a few places alſo the *Ludus Helmontii*. The ſoil in the vineyards appertaining to the village, as well as in thoſe of Sudagh and Koos, has been completely diveſted of its ſaline property, by conſtant irrigation. The talleſt ſhrub in the low grounds is the *Tamarix tetrandra;* while the *Aſtragalus Poterium* and *Harmala* grew here in great abundance: many ſpots alſo produced the beautiful *Hedyſarum* with red-veined bloſſoms; and an elegant *Carduus*.—On proceeding towards Koos, the large mountainous ridge, that advances into the ſea, and is termed Booyouk-Syrt, appears on the right of this road.

The fine valley, environing the village of Koos, has a warm ſite, and is adorned with numerous gardens and vineyards, which yield the ſtrongeſt wine in Crim-Tartary. It commences immediately above the village, between the mountains of Tokluk-Syrt and Porſſuk-kaya; extending as far as the ſea to the length of four verſts and a half. The whole dale divides itſelf, near the village, properly into two broad glens. That on the Weſt proceeds along a hilly ridge which terminates with the ſhore at the foot of the lofty mountainous chain, called Kopſes-Syrt, or Kopſaly, likewiſe advancing into the ſea; while it affords a paſſage to a nameleſs rivulet ariſing from an elevated ſource above the village, and ſerving to irrigate the gardens. On the other hand, the broader and principal valley, proceeding directly from the village, ſpreads and ſurrounds an iſolated long ridge, preſenting flat hillocks, and termed Kadirly-Burun; on the ſouthern point of which are

a demoliſhed hermitage, and a Greek church formerly dedicated to St. George, but at preſent in a ruinous ſtate. The weſtern branch of this dale expands to the breadth of one verſt; and both, being again combined, run progreſſively narrower towards the ſhore; where an excellent vineyard, denominated from its late poſſeſſor, Boſtandſhi-Oglu, opens a charming proſpect towards the ſea, and at the ſame time forms the outlets of the ſtreams paſſing through ſuch dale. In this vineyard riſes a copious ſpring: its water covers every ſoil, over which it flows, with a grey tophus, that combines more intimately with the clayey ſurface in proportion to its diſtance from the ſource, and thus renders it ſofter. To the left of this place, the vineyard-valley is confined by a height on which the piquet of Kozaks is ſtationed; and thus it is ſeparated from another ſhort but wide dale: the latter is interſected by deep rain-water hollows, and is overgrown with a tall luxuriant *Salſola ericoides*, with the caper-buſh, wormwood, and more ſparingly with the *Nitraria*. On the right, the more contracted vine-bearing vale, that commenced at the village, terminates on the ſhore, together with its accompanying brook, which is frequently dried up near its mouth. All the vallies, above deſcribed, abound with the moſt beautiful and fertile vineyards; and the Tartars, inhabiting the neighbourhood, are juſtly reputed to be the beſt cultivators of vines in the Crimea.

This valley is, at a certain diſtance, ſurrounded by lofty mountains, which protect it from the cold north-weſterly, northern, and north-eaſt winds, without depriving it of the beneficial influence of the ſolar rays: they uniformly extend towards

towards the South-eaſt, in almoſt parallel lines; and, on the weſtern ſide, conſiſt of the Tokluk-Syrt, Beeyouk-Syrt, and Kopſaly. To the Eaſt, there is uppermoſt the Porſſuk-kaya; which, like thoſe before ſtated, is compoſed of horizontal beds of clay and ſand-ſtone, having a more gradual acclivity; next follows the rocky eminence, called Pandſharkaya*; behind it, farther towards the ſea, appears mount Etſhkidagh, with its high prominent maſſes of rock placed on edge; and, at a ſtill greater diſtance, the Karadagh continues with a prolonged ridge, which on this ſide is perfectly black, being covered with lofty and pointed though diſſevered rocks, and extending into the ſea, where it forms remarkable precipices. Laſtly, the low and likewiſe craggy cape of Keeyk-atlama projects near the bay of Kaffa, and terminates this magnificent proſpect, that may be enjoyed in its whole extent from the guard-hill above mentioned.

Concerning the culture of the vine in the vallies of Koos and Sudagh, I ſhall ſeparately treat in a ſubſequent chapter. The grapes, produced in the former, attain to maturity at an earlier period, and afford a ſweeter and ſtronger wine. Nevertheleſs, that of Koos is inferior to the other, both in point of flavour and durability; which may probably ariſe from the peculiar richneſs of the ſoil, ſo that the vines bear more abundant fruit than in the vale of Sudagh.

Notwithſtanding the late emigrations of many Greek families, which formerly reſided in the village of Koos, and employed

* *Pandſhar*, in the Tartar language, ſignifies Sorrel, a plant which is ſaid to grow abundantly on this mountain, though it rarely occurs in other parts of Crim-Tartary.

them-

themſelves in raiſing vines, it ſtill has a numerous population; but the abandoned houſes are at preſent in a ruinous condition. Beſide a Greek church, ſituated on the eminence that ſeparates the two vallies near the village, the latter has a handſome metſhet, with a well-built *minaret*, or brick tower, in an octagonal form. Several excellent fountains once adorned this place, but moſt of them are now in a dry ſtate. For the erection of houſes, and the conſtruction of walls to encloſe their vineyards, the inhabitants of Koos are amply ſupplied with free-ſtone from the neighbouring mountains. Theſe alſo furniſh them with the numerous large flags and ſtone columns placed in their cemetery; as they are of a very hard texture, and reſemble thoſe deſcribed among the foſſils near Sudagh.

The road to Otuus, which is a continuation of that proceeding from Tarakatſh, already mentioned, becomes dangerous, when paſſing the ſucceſſive ſteep mountains in a carriage. Nevertheleſs, it is frequented by the Tartars, who dexterouſly drive their two-wheeled arabas down ſuch roads, to which their draught oxen are accuſtomed. This road conducted us through the valley ſituated above Koos (where we again met with a few orchards) over a rocky eminence of the Pertſhamkaya, which here forms a conſiderable new ridge of the marmoraceous grey lime-ſtone, taking a northerly courſe towards the Armenian convent, in the vicinity of Eſki-Krym. Another rocky eminence, before alluded to, and termed Eltegenn, exhibits on its elevated ſurface an old wall of defence drawn acroſs one of the ridges, the north-weſtern extremity of which riſes with a three-pointed rock, called Madſhil; and the latter is obliquely perforated with a triangular

gular hole admitting light throughout. On the heights grow ſeveral ſpecies of *Aſtragalus;* and, from the ſummit of the ridge, we deſcended by a very ſteep road, on the ſide of a prodigiouſly deep and woody dale, where, among other trees, the *Pyrus orientalis* was particularly numerous. This glen, which leads to the valley of Otuus, ſeparates the foot of the Pandſhar-kaya, and of another hill from the oppoſite high rocky mountains Kyſiltaſh-kaya, and which likewiſe appear to conſiſt of calcareous rock. The former dale has, from an ancient reſidence of a Turkiſh General, received the name of Sarai-deré; in the vicinity of which, oppoſite to Otuus, we obſerved the ruins of a metſhet, or houſe of prayer. The lime-ſtone rocks, however, now terminate near a ſpring, where the road attains the higheſt point. They are ſucceeded by uniformly ſoft layers of clay and ſchiſtus, in which ſuch dale has been formed, together with its collateral glens. The foſſil juſt mentioned is, in every direction, interſperſed with thin ſtrata of a ferruginous brown ſchiſtus, which are ſomewhat more level than thoſe near Sudagh, or even horizontal; deviating conſiderably in their extent, and being often in a manner diſlocated. Some beds of iron-ore alſo occurred in a few places.

On account of its ſituation between lofty mountains, as well as from its oblique expoſure to eaſterly winds, and the meridian ſolar rays, the valley of Otuus is not ſo favourable to the culture of vines as thoſe of Koos and Sudagh; though its ſoil is apparently ſuperior. The grapes, and other fruit produced in the orchards of this neighbourhood, are for the moſt part carried

carried to the market of Kaffa; where the wood and timber obtained from the abundant foreſts on the ſurrounding mountains, likewiſe meet with a ready ſale. The dwellings are divided into two ſmall villages, at a ſhort diſtance from each other; namely, Upper and Lower Otuus, in the latter of which is a metſhet. There is a road leading to the former from Koos through another dale, known by the name of Suakhan-deré.—The valley of Otuus is bounded on the South-weſt by the hills Mall-kaya and Papas-tepé; on the North-eaſt, by that of Saree-tſheſmé; but, on the Eaſt and South-eaſtern ſide, by the great and very extenſive Karadagh, which projects with ſerrated rocky ſummits. On the whole, it is pleaſantly ſituated, and equally adapted to tillage and horticulture; being watered by the ſmall rivulet Otuus.—Many of the ſand-ſtones, compoſing the adjacent mountains, are marked with impreſſions of blackiſh ſplinters and the ſtalks of plants; or are interſperſed with globular ſtones in the manner of breccia. Large fragments of rock are ſometimes precipitated from mount Mall-kaya; the limy ſand-ſtone beds of which advance in a direction North-weſt and South-eaſt, declining at an angle of forty-five degrees. In the diſengaged pieces, I remarked veins or ſcales of calcareous ſpar, nearly a foot thick, and covered with lenticular cryſtals. The tomb-ſtones of this place conſiſt, like thoſe at Koos and Sudagh, of long flat, ſquare columns, remarkably hard, and ſelected from the layers of ſand-ſtone. They are naturally combined with calcareous matter, ſometimes partaking of a ferruginous nature; and emit a ſound on percuſſion. On meaſuring ſome of theſe columns,

columns, which are likewiſe employed as land-marks on the heights between Sudagh and Koos, I found them more than two fathoms above ground; though they were ſcarcely fourteen inches broad, and ſomewhat leſs in thickneſs.

I proceeded in my journey from Otuus, with a view to explore the extremity of the ancient heights, as far as the eaſtern foot of the laſt high mount Karadagh, where a Tartar village formerly ſtood, together with a metſhet, and a handſome fountain. The moſt convenient road winds around the baſis of this large mountain, towards the North. On attaining the ſummit, we perceived, to our left, in the north and north-eaſtern quarters, the white mountains of recent calcareous ſtrata; which, with the poſt-road leading from Eſki-Krym to Kaffa, now approach the ſea; and, near the latter place, completely cover the older eminences; but are here, as in other parts of the Crimea, ſeparated from them by an extenſive open valley. They form, in theſe environs, a conſiderable hill; the ſouthern rocky terrace of which is termed Sareekaya.

The moſt lofty ridge of the Karadagh preſents conical rocks, and conſiſts of the rude grey lime-ſtone, which, on friction, is ſomewhat fetid; but its eaſtern foot is compoſed of a clayey ſtratum, interſected by ſeveral ſaline ſprings. There is, however, a well of ſweet cold water, iſſuing from the higheſt calcareous rocks, and properly encloſed with free-ſtone. In its vicinity lie the ruins of the village of Karadagh, on the mountainous declivity. The old road, conducting to this place, is unſafe; becauſe the ground is undermined by currents, and

many holes occur on the ſurface. In front of the Karadagh, the round lofty mount Aſeeis lies to the South; and has received that appellation from a prieſt who was in the habit of praying on ſuch eminence, where he is interred at his requeſt; and, as he died with the odour of ſanctity, his tomb is viſited by Tartar pilgrims.

On the eaſtern ſide of the Karadagh, a wide open dale extends towards the ſea. It commences in the vicinity of Eſki-Krym, and is in this country denominated Küük-tepé, or the Green Valley. Here is ſituated a ſmall village on a deſcent from the ſhore; but near the ſea appears a moderate height, conſiſting partly of ſand-ſtone, and exhibiting veins of an almoſt graſs-green, ſometimes red-ſtreaked *Jaſpis*, though ſeldom in a pure ſtate. It is ſemi-tranſparent, when viewed on edge; and a volcanic production diſcovers itſelf in a blackiſh porous *Amygdaloides*, the cavities of which contain ſpar and chalcedony. Numerous roundiſh fragments of both the foſſils laſt mentioned, are likewiſe ſcattered along the ſtrand; and this *Jaſpis* is the only mineral in all Taurida, which tends to prove the effects of very ancient volcanos.

Beyond the valley above alluded to, and on this ſide of a ſloping, inconſiderable promontory (behind which lie Kaffa, and a bay of the ſame name), we deſcried a narrow iſthmus covered with rocky hillocks, and far advancing into the ſea. It is by the Tartars termed Keeik-Atlama, or the Roebuck's Leap; and here was erected a fortification known by the name of Dva-Yakornoi Battery, or the Two-Anchor-Battery. From ſuch promontory I obtained large pieces of a ſemi-

ſemi-petrified charcoal that are thrown up by the ſea, and are likewiſe found in one of the ſand-ſtone ſtrata. With this eminence terminate the old ſtratified mountains of Crim-Tartary; and thus I have deſcribed them in their whole length, amounting to nearly two hundred verſts along the ſouthern coaſt; where they are ſurrounded by the more recent horizontal ſtratifications.

Journey through the Interior of the Crimea, along the Peninſula of Kertſh, and to the Iſle of Taman.

AFTER having completed my excurſions over the more elevated mountains of Crim-Tartary, I had ſtill to explore, not only the modern ſtratified heights together with the adjacent plain, but alſo the peninſula ſituated towards the Boſphorus, with its abrupt hillocks, and the oppoſite iſle of Taman, which in many reſpects deſerves attention. Such were my laſt purſuits during the ſummer.

The environs of Akmetſhet, as far as Karaſſubaſar, the ſecond town of importance in the Crimea, preſent extenſive level

level grounds between the calcareous eminences, or at leaſt a greater variety of plains than of mountains. From the Salgir to the rivulet Suya, the hills are ſeen at ſome diſtance on the left, precipitately declining to the South; while, on the right, they form gentle declivities covered with herbage. In the ſpring, theſe plains are generally embelliſhed with flowers of various ſhades, and in ſuch abundance as to exhibit, at a diſtant view, whole flats overſpread with the bloſſoms of the prevailing plant, according to the nature of the ſoil. Thus, for inſtance, the *Pænia multifida*, or *Papaver*, produces a bright-red veil over the ſoil; the *Vinca*, or *Salvia nutans*, makes a perfect blue; the *Euphorbia Vaillantia*, or *Ranunculus*, is entirely yellow; the *Aſphodelus Tauricus*, or *Myagrum*, appears whitiſh green; and the tracts of ſuch colours, being alternately relieved with green, afford the moſt variegated and pleaſing views. The native horſe-raddiſh of this country, or *Crambe orientalis*, is very frequent between the Salgir and the Suya, where its roots often exceed the ſize of a man's arm. The banks of the rivulets we croſſed, in their courſe towards the Salgir, preſent numerous Tartar villages: the names of the former, in their natural order, are as follow; namely, the Bala-Salgir, which ſometimes ſwells conſiderably, in conſequence of heavy ſhowers; the Tſhoountſhu; the rapid Beſhterek; and, laſtly, the Fondukly, that diſcharges itſelf into the Suya; and on the upper banks of which, in the vicinity of a village bearing the ſame name, Prince Potemkin has cauſed a fine vineyard to be planted with Hungarian vines. Between the Bala-Salgir and the Tſhoountſhu, the Tauridan white aſphodel covers the ground, as if it had been regularly ſown. Behind

hind the ſteep terraces of the heights, we met with an uneven country, interſected with hollow grounds: its ſurface is overſpread with a fertile vegetable mould, extending towards the adjacent plain; and, between the rivulets Tſhoountſhu, Beſhterek, and Suya, which flows into the Salgir, there appear in many places the calcareous layers, expoſed by large flats, and in a manner caſt into one piece. Theſe ſtrata are moſtly porous, ſometimes reſembling tophus, and being generally compoſed of teſtaceous ſand and rubble. As their bulk is conſiderable, the Tartars employ them in erecting the walls that encloſe their yards and meadows. In ſome beds, the ſubſtance of the ſhells is decompoſed, or ſwept away by the water, ſo that their impreſſion only remains in the calcareous maſs. Others, again, are mingled with quartz and various particles of gravel. A very peculiar kind of brittle, light, and ochreous-yellow lime-ſtone is obtained from a quarry near the village of Burnaſh; where the two rivulets laſt mentioned unite in the vicinity of the Salgir. This foſſil is looſely caked together of broken, fine, and very friable ſhells: when moiſtened, it may be crumbled by the hand, or hewn into different forms with a hatchet, or likewiſe be eaſily divided by the ſaw. Although it acquires ſome degree of hardneſs, on expoſure to the atmoſphere, ſo that houſes have been conſtructed of ſuch material, yet it is permeable by air and water; and, after a dwelling has ſtood for ſome time, it is remarkable that the rain, abſorbed by the walls, diſſolves the calcareous particles; and theſe gradually cement the ſquare ſtones to each other.

In the vicinity of the Suya, or twenty-one verſts from Akmetſhet, a village has been eſtabliſhed by ſome Ruſſian coloniſts, whoſe

whoſe moral character deſerves no commendation. The whole region is completely diveſted of wood; but, on approaching the mountains, at the diſtance of nearly eight verſts from the road, we again met with trees, and ſhortly after with foreſts. Both arable and meadow lands are here throughout of an excellent quality, and yield good crops; but the frequent droughts, occurring in Taurida during the vernal ſeaſon, too often diſappoint the expectations of the huſbandman.

Beyond the rivulet Suya, we travelled over an eminence that conducted us to the ſmall brook Manta; and, about ſix verſts from the former, we croſſed a more conſiderable ſtream, named Burultſha: like that of the Suya, it iſſues from a high part of the mountains; flows towards the low country watered by the Salgir; and almoſt diſappears beneath the ſoil, previouſly to its confluence with that river. None of the Crimean ſtreams preſents ſuch variations in the volume of water as the Burultſha. Its bed, being covered with pebbles and gravel, is at leaſt ſixty fathoms broad; though, in general, a very ſmall current only paſſes over this extenſive channel. Nevertheleſs, after violent ſhowers, or when large quantities of ſnow diſſolve on the heights, the whole bed is ſometimes filled to the height of an arſhine, and the brook exhibits a rapid torrent.

After croſſing the rivulet Suya, the country becomes remarkably level; and an extenſive plain opens in front of the lofty Alps of Temirdſhi and Karabeé, riſing progreſſively, without forming conſiderable hills; ſo that the whole chain of the eaſtern mountains, together with the Tſhatyrdag, may be diſtinctly ſurveyed. This flat region, which alſo expands in a ſouthern direction, has ſcarcely any layer of ſtone on its ſurface,

ſurface, and preſents rich paſtures, meadows, and fields. In February, the *Colchicum vernum*, a plant peculiar to this country, abundantly flouriſhes in the black ſoil, and appears here at an earlier period than the other ſpecies of Crocus.

On advancing towards Karaſſubaſar, we deſcried, to the left of our road, a chain of calcareous mountains, gradually riſing, and proceeding upwards of eight verſts in length, to the vicinity of the town; when it takes a more ſoutherly courſe, and joins the heights known by the name of Akkaya. Theſe eminences unite, beyond the Karaſſu, with others conſiſting of lime-ſtone and chalk; and which extend from North-weſt to South-eaſt around the ſpacious low ground wherein the town is ſituated; forming a circle of at leaſt twenty verſts. At the ſides of ſuch deep glen, there appear throughout high terraces, compoſed of chalk and marl; one corner of which at length combines with the ancient, lofty, and wooded mountains, whence the brook Indal derives its ſource. The cretaceous heights contain gradual layers of blackiſh pyrites, frequently in a concrete ſtate with a white marly foſſil; in which it is difficult to diſcover either tranſmutation or tranſition, but rather an original mixture of ſiliceous and clayey matter with chalk. The ſtratified foſſil, when diſengaged from the chalk, generally exhibits in the middle a pure black *ſilex*; being ſharp on its edges, and covered both above and below with a ſnow-white cruſt; which, near the pyritic ſubſtance, poſſeſſes the hardneſs of flint, and ſcarcely effervеſces with acids; though it becomes ſofter towards the ſurface, where its effervеſcent property is progreſſively more evident.—Theſe cretaceous hills, being expoſed to the meridian ſun, produce plants of uncommon

mon beauty. Among them were particularly conſpicuous, two elegant *Hedyſara*; a *Crepis* bearing roſe-coloured flowers; a few rare ſpecies of the *Gallium*; as well as the following, that generally grow on chalky-cretaceous eminences; namely, the *Salvia Hablitziana*, *Convolvulus biflorus*, *Scabioſa cretacea*, *Aſtragalus Auſtriacus* and *multicaulis*, *Scutellaria orientalis*, and all the varieties of the *Veronica Auſtriaca*. It is, however, to be regretted, that only a few of theſe handſome plants are ſuffered to arrive at perfection; as they are in moſt ſummers deſtroyed by herds of cattle depaſturing in theſe regions.

The plain, in which the town of Karaſſubaſar is erected, appears very low, when contraſted with the eminences that ſurround it; nay, even on its weſtern ſide, where no hills occur, the flat country perceptibly declines as far as the banks of the Saris, which rivulet we croſſed by a bridge built of free-ſtone. On account of the adjacent cretaceous mountains, the place is exceſſively hot in the ſummer; as, on the contrary, during the winter, and after heavy rains, it is filthy beyond deſcription: the latter inconvenience is farther increaſed by the confluence of ſeveral rivulets, and of the canals conducted through the town, for the purpoſe of irrigation. Notwithſtanding theſe circumſtances, and the great want of potable water, the inhabitants of Karaſſubaſar are not, in any remarkable degree, expoſed to diſeaſes; though we obſerved among them few perſons of a healthy complexion. The ſtreets, like thoſe in all Tartar towns, are narrow, irregularly built, and moſtly lined with the walls of encloſed premiſes. Some tolerable dwelling-houſes, the large mercantile halls raiſed with ſtone, and the metſhets, together with their turrets, contribute to give a

reſpectable appearance to this city; which exhibits the moſt advantageous view on deſcending towards it by the ſouthern road, down the mountains, along the banks of the Tunas. From ſuch poſition, I have cauſed the proſpect, communicated in the thirteenth plate, to be drawn; ſo as to repreſent the eaſtern quarter of the town.

Karaſſubaſar contains twenty-three Tartar metſhets; three churches, one of which belongs to the Armenian Catholics; and a ſynagogue. There are farther, in this place, twenty-three khans or mercantile halls of various ſizes; three hundred and ten booths or ſhops; twenty-three coffee-rooms; and nine hundred and fifteen dwelling-houſes. In the town, together with its neighbourhood, are ſeven mills, turned by different ſtreams. The principal warehouſe for the diſpenſation of medicinal drugs throughout the Crimea, has been tranſferred hither from Yenikalé, ſince the year 1796: it occupies a convenient houſe, with an excellent garden adjoining; which formerly were the property of General de Roſenberg. On the banks of the rivulet Tunas, above the town, a palace was erected for the late Empreſs; but it was ſubſequently granted to Prince Beſborodko, together with the adjacent lands; and has lately been rebuilt by its preſent poſſeſſor, Lambro Katſhoné.

The number of male inhabitants, ſettled at Karaſſubaſar, does not exceed fifteen hundred; among whom are nearly one thouſand Tartars; upwards of two hundred Jews, chiefly Talmudiſts; a ſimilar proportion of Armenians, of whom leſs than one half are Catholics; about one hundred Greeks; and a few Ruſſians. Beſides, there are rather more than two thouſand females; and the ſtrangers of different nations,

ſuch

ſuch as Greeks, Armenians, Italians, Jews, and Ruſſians, may be computed at about two hundred individuals. In addition to theſe, ſhould be mentioned the handſome regiment of dragoons quartered in this town; and for whoſe accommodation, barracks and ſtables have been built in the ſuburbs.

As the commercial intercourſe between Karaſſubaſar and the neighbouring villages is very briſk, every commodity may be purchaſed at a cheaper rate than in other markets of Crim-Tartary. Artiſans and manufacturers have eſtabliſhed themſelves here in conſiderable numbers. The principal among them are tanners of morocco and other kinds of leather, wax and tallow chandlers, ſoap-boilers, potters, brick and tile-makers, and ſmiths. The place is amply ſupplied with fruit and vegetables, not only from the adjacent orchards and gardens; but the former productions, in particular, are likewiſe brought hither in abundance from the mountainous parts, and ſold at reaſonable prices. Grapes are, during the autumn, ſo plentiful, that many inhabitants, eſpecially the Jews, advantageouſly expreſs their juice, and convert it into wine; for which purpoſe they employ veſſels, hewn out of the ſolid lime-ſtone. Cattle of every kind are brought to the weekly markets in ſuch numbers, as to induce the proprietors to diſpoſe of them at a moderate value.

Many buildings are here erected of unburnt bricks, which are caſt in moulds of a tolerably large ſize. Thus houſes may be raiſed more expeditiouſly, and at a leſs expence, than thoſe conſtructed with loam and ſtraw; a method that occaſions unneceſſary trouble and loſs of time. In proportion as ſuch bricks are expoſed to the atmoſphere, the walls built of them

become progreſſively more ſolid and durable. Since the Ruſſians made themſelves maſters of the Crimea, the vaſt Tartar cemeteries have, both here and in other towns, nearly been diveſted of their tomb-ſtones; moſt of which, being hewn, have been employed in the erection of dwellings. This has particularly been the caſe with thoſe found in the vicinity of Karaſſubaſar. Laſtly, the country, ſituated between the Great and Little Karaſſu, affords an excellent lime-ſtone, for building and various other purpoſes; as the calcareous beds are in a manner caſt into large maſſes, whence columns and ſquares of almoſt any dimenſion may be hewn out of a ſingle block.

Directly behind the town, we croſſed the Great Karaſſu, or Black Water; the remarkable ſource of which riſes from an arched rock, not above ſixteen verſts diſtant from Karaſſubaſar; though it has been inaccurately delineated in the Letters written by the late Lady CRAVEN*. This river is not in every reſpect equal to the Salgir, even during the prevalence of high floods. Mountains, formed of cretaceous and lime-ſtone beds, immediately commence on the oppoſite ſide of the former ſtream. Many layers of blackiſh pyrites are here likewiſe depoſited within the chalk, and exhibit a white incruſtation. The moſt lofty ſeries of cretaceous ſtrata, in this place, is the Akkaya, or White Mount, on the left of our road: its ſouthern and weſtern ſides preſent a gigantic ſquare wall

* *A Journey through the Crimea to Conſtantinople, in a ſeries of Letters from the Right Honourable Elizabeth Lady Craven, to His Serene Highneſs the Margrave of Brandenbourgh, Anſpach, and Bareith. London,* 1779. 4*to. p.* 169.

reſembling

reſembling an artificial fortification; though it more gradually declines to the North. This hill is, in the Ruſſian language, commonly termed Shirinſkaya-gora; becauſe it ſerved as the uſual rendezvous to the diſcontented Murſes or Nobles of Shirinſki, when they revolted againſt the reigning Khan. We perceived a cavern in the abrupt ſouthern terrace of the mountain, immediately above the rubble or fragments covering its foot; and another, though inacceſſible one, appeared in a ſtill higher ſituation. In a deep hollow towards the weſtern declivity of the eminence, there generally occur flints with a white cruſt: they are lodged within the chalk, which is peculiarly ſoft, and adapted to many uſeful purpoſes; though, in other ſituations, it is almoſt uniformly coarſe and gritty. A ſaponaceous foſſil, ſimilar to the Fuller's earth mentioned in a former part of the preſent volume, has alſo been diſcovered in this country: farther, a large proportion of ſelenite is here ſcattered in the clay; which the Tartars employ, in a calcined ſtate, for whitening their fur-dreſſes.

The poſt-road, which hitherto proceeded due Eaſt, now takes a north-eaſterly direction, as far as the Little Karaſſu, firſt over a bed of chalk, and afterwards over a ſtratum of limeſtone, apparently caſt in one ſolid piece: the ſurface of the latter is expoſed in conſiderable flats; being in a manner waſhed by the waves of the ſea, and in its ſuperficial excavations preſenting only ſmall portions of vegetable earth; in which, among other handſome plants, we diſcovered a diminutive *Iberis* with ſucculent, cylindrical leaves.

In the vicinity of the Little Karaſſu, the road turns to the South-eaſt. Both the banks of this rivulet conſiſt of hard calca-

calcareous ſtrata; beneath which ſeveral grottos have naturally been formed by the water. At the diſtance of twelve verſts from the town of Karaſſubaſar, the oppoſite bank, on the right, preſents a riſing lofty ridge of lime-ſtone; which, as has already been mentioned, extends to the South-weſt, around the ſpacious valley of the ſame name. The proximate part of the ridge, which is well covered with wood, abruptly declines towards the dale, and is termed Uſſun-Alan. From its ſummit, though frequently enveloped in clouds, there is an extenſive proſpect, not only of the whole flat country in the environs of Karaſſubaſar, and to the North over the fronting eminences, together with the immenſe plain ſpreading towards Arabat, but likewiſe over the Sivaſh, the ſea of Azof, and to the North-eaſt of the peninſula of Kertſh. This magnificent view exceeds all imagination; and is bounded on the Eaſt only by the high calcareous mountains of Agermyſh, appearing in the vicinity of Eſki-Krym, and the woody heights on which the Armenian monaſtery is erected; while, towards the South, it is terminated by the lofty hills near Uſkut. The whole eminence is compoſed of horizontal ſtratifications of lime-ſtone, often lying very near the ſurface; which is nevertheleſs embelliſhed with the fineſt verdure and rich flowers, as well as with a variety of thick woods. Its proprietor, General Kachoffky, ſince promoted to the dignity of a Count, has cauſed many paſſable roads to be made through the foreſt, which might be eaſily converted into pleaſure-grounds. Formerly, an Armenian convent ſtood on an adjoining elevation, and its veſtiges are ſtill diſcernible. Among the trees and ſhrubs, ſpontaneouſly growing here, the following are the moſt conſpicuous;

cuous; namely, various ſpecies of oak; white beech; lime or linden-trees; trembling poplars; winter and ſummer pear-trees; wild apple and cherry-trees; round plumb-trees; ſloes; numerous hazel-nut and cornelian cherry-trees; water-elder; *Liguſtrum; Cotinus;* ſome varieties of the *Evonymus Europæus;* and others interſperſed with the native vine and black-berry.—The moſt remarkable plants are, the *Betonica*, *Agroſtemma coronaria*, *Ferula orientalis*, *Selinum Monnieri*, *Gentiana cruciata*, *Chryſanthemum corymbiferum*, *Polygonatum*, and a beautiful *Lathyrus:* at the level baſe of the mountain, we noticed the large *Fumaria* above alluded to, and three different kinds of the *Pæonia;* one of which is the common peony with broad leaves, indigenous to the Crimean mountains; the ſecond is the *P. tenuifolia*, diſtinguiſhed by its thin leaves; and the third is evidently an intermediate variety that has ſpontaneouſly ariſen from the two former flowering at the ſame time; and of which I have given a repreſentation in my work, entitled, "*Flora Roſſica**." As an inſtance of its improved ſtate, the variety laſt mentioned never produces ripe ſeed; and is, therefore, rather ſcarce. On the whole, it deſerves to be remarked, that all the environs, watered by the two rivers Karaſſu, are richly diverſified with plants.

About fourteen verſts from Karaſſubaſar, on the declining banks of the Karaſſu, we arrived at Aſamat, a pleaſant country-ſeat of Count Kachoffky, before mentioned. His eſtate compriſes upwards of ten thouſand Ruſſian deſſatines of the fineſt arable and meadow lands; on which, beſide two Tartar villages, there is one eſtabliſhed by Ruſſian coloniſts, and another

* Vol. I. Part II. *Tab.* LXXXVI.

by

by newly-ſettled Nagays, known by the name of Melek. The laſt of theſe has a population exceeding five hundred perſons; and the road paſſes in its vicinity over gradually riſing heights to the next ſtage, called Burunduk (twenty-five verſts diſtant from Karaſſubaſar): here a poſt-houſe is erected on the banks of the Bulganak; which, in conjunction with another brook, flows into the Sivaſh.

We now quitted the direct poſt-road, leading by Eſki-Krym to Kaffa and Kertſh, in order to travel over the mountains to Sudagh; and this ſouthern tract I propoſe immediately to deſcribe.

On the eminences near Burunduk, there are quarries of a hard marly ſtone, fit for flags, and containing ſcarcely any petrifactions. In the neighbourhood of the brook Indal, or Yendol, theſe heights are ſucceeded by conſiderable calcareous mountains, one of which is peculiarly conſpicuous. It projects near Kiſhla with craggy lime-ſtone rocks; is by the Tartars denominated Borkaya; and exhibits a cavern, together with many blocks of wacca, that have been precipitated from its upper parts. It is evident, from the inſpection of the hill juſt alluded to, that the horizontal ſtrata, on approaching the ancient elevations, progreſſively riſe towards the South. Within the hollows and rocky fiſſures of this mount, there are found numerous ſwarms of wild bees; ſuch as are likewiſe frequently diſcovered in the cavities of trees and rocks of other alpine parts. In the environs of the calcareous mountains, here deſcribed, fogs are very prevalent, eſpecially during the cold ſeaſons; and the valley of Indal, though agreeably ſituated, is notoriouſly unhealthy, on account of its uncommon humidity. On the other

other hand, the whole country, watered by the rivulet Indal, preſents excellent meadows, paſture-grounds, and black arable lands. A regiment of dragoons was formerly ſtationed at Kiſhlau, but their barracks and ſtables have been ſuffered to fall into ruin; and we could now only trace the veſtiges of the garden that was once laid out near the head-quarters.

The hills, appearing beyond the Yendol, become ſucceſſively higher: they gradually approach each other, and are occaſionally covered with woods, eſpecially thoſe lying near the banks of the brook Soukſala, which diſcharges itſelf into the Yendol. Inſtead of the almoſt horizontal ſtrata of lime-ſtone, hitherto met with, the old ſtratified mountains now ariſe: they incline more precipitately in proportion to their farther extent, and at length form nearly perpendicular layers; which conſiſt alternately of argillaceous ſchiſtus with ridges of ſand-ſtone, breccia, and at length of lime-ſtone rock. Their whole breadth, from Soukſala to Sudagh, in a ſtraight line, amounts to about ſixteen verſts; though the circuitous road through the vallies is a tract, exceeding twenty-five verſts. On the banks of the Soukſala, in a very fertile country which is amply provided with wood, we paſſed a populous village eſtabliſhed by Ruſſian ſailors and ſoldiers, who have obtained their diſcharge. In the deep hollows, occurring between this place and the country-ſeat of Shakh-Murſa, ſituated near the brook Kuru-Yendol, to the left of our road, the mixed ſtrata of marly and ſchiſtous clay decline rather precipitately towards the North-eaſt; and, in ſome places, exhibit the veſtiges of charcoal. At the height parallel to that of Shakh-Murſa, there lies a marly free-ſtone beneath the bed of

clay. Immediately after, we croſſed another eminence leading to the village of Elbuſly; where, beſide a Tartar village, numerous Ruſſian coloniſts have, at a great expence, been ſettled in the vicinity of a ſmall rivulet and fine ſprings, by Admiral Mordvinof, the preſent proprietor. The Tartars of the village laſt alluded to, keep many buffaloes, that are ſeldom found in other parts of Crim-Tartary; and which, like thoſe reared in Moldavia, attain only a ſmall ſize in this cold climate; being well covered with black hair; while the Perſian buffaloes are almoſt naked. Theſe animals are bred not only with the view of obtaining their rich milk, but alſo on account of their ſuperior ſtrength in carrying heavier burthens than common cattle.

On departing from Elbuſly, the woody mountains preſent a great variety of ſprings, and riſe progreſſively. They contain, however, no remarkable plants, excepting the large *Crocus ſylveſtris*, that flowers in the month of October. Among the conſiderable hills, between which the road conducted us to the village of Soukſu, being ſix miles diſtant from the laſt place, there is a long ridge particularly conſpicuous, near the ſource of the rivulet Soukſu; forming a lofty bank of rocks in a creſted ſhape; being from five to ten fathoms thick, and upwards of fifteen fathoms in height; extending nearly from Eaſt to Weſt, and inclining towards the South, at an angle of fifty degrees. The whole ridge conſiſts of calcareous pudding-ſtone, divided into two layers; which are, in ſome places, interſected by oblique veins of calcareous ſpar. A few ſimilar ridges occur in the weſtern mountains, the conſtituent parts of which I had no opportunity of examining; but they apparently reſemble the former.

The

The road now follows the lower banks of the Soukſu; along which the hollows and interſections of the mountains, in every direction, exhibit layers, partly of breccia, and partly of ſand-ſtone: they proceed almoſt in a line from Eaſt to Weſt, and ſink rather abruptly. Near the village of Soukſu, there likewiſe appear intermediate beds of baſaltic wacca; and the ſchiſtous clay is alternately diverſified with ſtrata of ſtone.—At the diſtance of eight verſts, in the vicinity of the village termed Tarak-taſh, our attention was attracted by the lofty and protracted creſt of rocks, known by the ſame name*. It is compoſed of a coarſe layer of ferruginous, often very incoherent, pudding-ſtone; the ſpherical ſtones of which are ſometimes larger than bombs. This bed of foſſils farther extends in a lower ſituation weſtward, croſſing the road, and beyond the valley watered by the Soukſu. The village itſelf is built at the foot of the mountain, which diſplays the creſted rocks. On account of its pleaſant ſituation, and the remarkable figure of the hill, I have communicated a view of both in the fifteenth plate. Oppoſite to this mount, on the weſtern ſide, appears the high, pyramidal barren rock of lime-ſtone; which, from a ſingular cliff attached to it, and ſomewhat reſembling a frog in a ſittting poſture, is denominated *Bakataſh*. On advancing a few verſts with the current of the rivulet, we deſcended into the rich vine-bearing valley of Sudagh, above deſcribed; and thus again approached the ſea-coaſt.

* *Tarak* ſignifies a Cock's comb, and *Taſh* denotes a rock: hence the ſhape of this rocky eminence juſtly deſerves ſuch name.

In order to continue my narrative, without farther interruption, I ſhall return to the principal road.—Although Eſki-Krym is, by the uſual mode of travelling, not leſs than twenty-four verſts diſtant from the laſt ſtage of Burundſhuk, yet there is a more direct road from Elbuſly, by the way of Shakh-Murſa, which does not exceed fifteen verſts. We proceeded from the laſt mentioned place to Eſki-Krym, along a ridge, extending between two vallies that interſect it from the wooded and more elevated mountains. Theſe conſiſt, to the left, of the lofty and protracted calcareous hills of Agermiſh, the chain of which terminates towards the plain country with a leſs conſiderable hill advancing to the Eaſt, and called the Barren or Taſh-agermiſh, that lies in the vicinity of Karagos. To the left are the thickly wooded eminences, which join the lofty mountains ſtretching towards Koos and Otuus. On attaining the ſummit of this ridge, we deſcried an Armenian convent, ſituated in a high foreſt; and which is the reſidence of an Archimandrite of that nation.

The Eſki-Krym, or Old Crimea, properly ſo called, and in the Ruſſian language, Staroi-Krym, is ſituated, together with its extenſive ruins, in a fertile plain imperceptibly declining from the lofty ridge, and is probably the ancient *Cimmerium*. Our attention was firſt excited by the remains of two Tartar metſhets lying near the road. In their vicinity, we noticed a building erected over a conſiderable and excellent ſpring; for the reſtoration of which, as well as for the conſtruction of an upper room appropriated to the reception of viſitors, we are indebted to the brave and reſpected General de Schütz. Next follow the remains of a more capacious Armenian church, the walls of

of which form an oblong ſquare, ſupporting an octagonal arched cupola: on its eaſtern ſide, internally, there is a projecting niche intended for the altar; but, on the weſtern extremity, it preſents a veſtibule conſiſting of two diviſions. On the ſame ſide of the ſuburbs are the barracks for a regiment of ſoldiers, but which are now empty, and in a ruinous ſtate; farther, a vineyard planted with Tokay vines. Among the ſcanty and almoſt effaced ruins of Eſki-Krym, are thoſe of a Tartar bath; of two metſhets; of a Greek church: and, near the banks of the rivulet Serenſu, which glides along the ſouthern part of the town, there is an old empty palace of a moderate ſize, formerly belonging to the Crimean Khans, and which is ſtill in tolerable condition. A Ruſſian Biſhop reſided here till the year 1800 in a new edifice, which is now likewiſe uninhabited. As this once populous town lies in one of the moſt fruitful parts of the country, it is not improbable that it may be re-eſtabliſhed by the Armenians, to whom it has lately been granted, together with twelve thouſand deſſatines of land. All the adjacent parks and orchards, however, with which it was ornamented, have been almoſt entirely laid waſte; ſo that, of the very numerous mulberry-trees, only the moſt wretched, or ſuch as could not be uſed by the carpenter, are left ſtanding. The abundance of theſe trees ſuggeſted to Prince Potemkin the idea of eſtabliſhing here a ſeminary for rearing ſilk-worms, and a nurſery for additional plantations. With this view, he engaged in the Ruſſian ſervice a certain Count Parma, of Milan; who was appointed Director of the Inſtitution for raiſing Silk; and, though poſſeſſing a very imperfect knowledge of the buſineſs, he enjoyed a handſome ſalary.

Several

Several Tartar buildings were alſo aſſigned to him, as well as one thouſand eight hundred and fifty deſſatines of the richeſt ſoil around the town, both for the planting of mulberry-trees, and for ſettling the coloniſts devoted to the culture of ſilk. But the diſturbances during the late war prevented the execution of this project on a large ſcale. The Director obtained his pay regularly till the year 1796; and all his efforts have been productive only of from ſix to ten pounds of ſilk annually, and in the laſt year of twenty pounds weight; beſide which, he has laid out a nurſery of ſeveral thouſand mulberry-trees. In conſequence of ſuch failure, the attempt has been totally relinquiſhed. Should the Crimea, at ſome future period, be ſo fortunate as to receive a few thouſand Georgian and Armenian coloniſts, who might proſper and live here more peaceably than on the ſteppes near the Kuma and Terek, there is no doubt but many hundred poods of ſilk could, from this neighbourhood, be brought to commercial markets, without requiring a ſuperintendant, or occaſioning expences to Government. Farther, a variety of other uſeful articles might, with advantage, be cultivated by theſe induſtrious people, who are habitually inclined to ſimilar purſuits. It is, however, to be regretted, that all the fine, warm dales of the ſouthern coaſt are inhabited partly by uſeleſs, inactive, and, in certain caſes, dangerous Tartars, who underſtand the art of deſtroying better than that of rearing; and, on the other hand, that the crown-lands have been granted to ſuch proprietors, as poſſeſs neither the ability nor the good-will of eſtabliſhing colonies for the public good, in ſituations thus favoured by nature.

All

All the environs of the city of Eſki-Krym, as well as the eminence, generally called Kuſghunu-Burun, or the Crow's Hill, which is ſituated between the town and mount Agermiſh, in every direction exhibit traces of a former, very conſiderable population. It is farther remarkable, that there are numerous wells and ſprings on a height, which on both ſides is interſected by a valley. Many traces of aqueducts are likewiſe diſcoverable under ground; but they are moſtly in a ruinous ſtate. Shahin-ghirei, the laſt ſovereign Khan of Crim-Tartary, cauſed unproductive mines to be opened in mount Agermiſh, which preſents the deep cavern, or abyſs, mentioned by Hablitzl, and known by the name of Ingiſtan-Kuyou. Here, as in ſeveral other places, the ſulphureous pyrites proved to be a falſe guide. As the hill is much expoſed, and may be deſcried at a great diſtance, it is by no means improbable, that ſuch eminence is the Cimmerian mountain of STRABO.

On departing from Eſki-Krym, we deſcended the laſt eminence formed by the calcareous promontory, reached a plain abounding with herbs. At the diſtance of ſeven verſts from our laſt ſtage, we arrived at the country-ſeat of the hoſpitable and gallant General de Schütz, in the vicinity of the village of Karagos. Immediately on leaving the town, there appears an ancient wall, the proper direction and extent of which I could not aſcertain. In this neighbourhood, we alſo diſcovered the remains of a ſepulchral monument, conſtructed of free-ſtone, and embelliſhed with a Gothic arch. According to a Tartar inſcription, bearing the year 868 of the hegira, or 1454 of the Chriſtian æra, it has been erected in memory of a certain Hiaſſedin-Sultan, the ſon of Khan Kilai-Temir.

The

The economical plans, carried into effect by the poſſeſſor of Karagos, deſerve great praiſe; becauſe they are the firſt of the kind, ſince the occupation of Crim-Tartary by the Ruſſians. His eſtate lies in a fertile, riſing plain, on the banks of the rivulet Serenſu; the ſource of which is in the vicinity of Eſki-Krym. Contiguous to the manor-houſe, a vineyard has been planted with three thouſand vine-ſtocks; and there is alſo an apiary, which frequently contains three hundred bee-hives*. Beſide the kitchen and flower gardens, we obſerved, on the oppoſite ſide of the brook, extenſive old orchards, on a riſing ground occupying ſeveral ſquare verſts. On the ſame eminence are ſituated a Tartar houſe of prayer; a village inhabited by Nagays, who have become Ruſſian vaſſals; and, at ſome diſtance, another village of domeſticated Tartars. The breeding of numerous cattle is here ſucceſsfully attended to; but, as the country is not ſufficiently provided with wood, both the Tartars and Nagays (like thoſe living on the whole ſteppe) are obliged to employ a ſpecies of turf, compoſed of dung and other ingredients, as a ſubſtitute for fuel.

From the plain of Karagos, the road leading to Kaffa, which is ſeventeen verſts diſtant, again approaches the extreme calcareous promontories that incline towards the weſtern part of the bay, and thus conceal the loftier mountains. Several hollows, formed by torrents, though at preſent in a dry ſtate, extend down the heights; being provided with a few well-

* The author denominates them *bee-ſtocks*; becauſe no hives are uſed either in the Crimea or in the North of Europe; where the ſwarms of bees are generally introduced into an excavated block or trunk of a tree, having two compartments; the upper one for the depoſition of honey, while the lower part is moſtly ſtored with empty honey-combs. —*Tranſl.*

arched

arched ſtone-bridges, which are ſtill in good condition. After travelling over uniformly level grounds, we reached the bay of Kaffa, which has a ſandy bottom, and is upwards of twenty-eight verſts in breadth. On proceeding two verſts farther, along the ſhore of the latter, we arrived at Kaffa, a town that is ſituated on the weſtern angle of the bay; and which, notwithſtanding its former proſperity and population, has lately experienced ſuch adverſe fortune as to exhibit little more than a heap of ruins.

After the ſeizure of the Crimea, this city received its ancient name of Theodoſia; and, at preſent, its later Tartar denomination is again prevalent, though it was alſo called by the Tartars Kutſhuk-Stambul, or Little Conſtantinople. Being erected in an excellent ſituation very favourable to commerce, it was the principal place in the Crimea, poſſeſſed by the Genoeſe. Even under the Tartar government, it was a populous town, flouriſhing by its trade, and inhabited by many Greek and Armenian families. But, during the late Turkiſh war, when the Ruſſians made themſelves maſters of Kaffa, and eſpecially after the occupation of the whole peninſula, this city was almoſt depopulated, in conſequence of the numerous emigrations; ſo that, with the exception of a few ſmall quarters, it now repreſents a prodigious heap of ruins that cannot fail to excite commiſeration. The ſtrong and lofty walls of the town, erected of free-ſtone by the Genoeſe, ſtand almoſt entire; and are ſtrengthened, eſpecially on the ſea-ſide, by numerous fortified towers, at the diſtance of twenty, forty, and ſixty fathoms from each other. Theſe towers are remarkably well built, being open at the lower interior part,

which is encloſed with a large Gothic arch; and having, about the middle of their elevation (where perhaps galleries or balconies had been contrived) four embraſures for cannon, ſeveral of which were probably alſo placed on the platform. The wall encloſes an oblong ſquare along the bay, nearly two verſts in extent, and proceeds, on its weſtern and ſouthern ſides, over a part of the adjacent calcareous heights, that form the lofty weſtern promontory, terminating the eminences. On this cape is raiſed the ſmaller fort or citadel, together with a conſular houſe ſtill exiſting. Over the entrance to the latter, there appears to have been an inſcription, of which the name of JUSTINIANI is ſtill preſerved. The fortification, laſt alluded to, preſents twelve elevated towers with battlements: beneath them are four gates, one of which is particularly diſtinguiſhed; the whole being confined within remarkably ſtrong walls, and a dry foſſe lined with maſonry-work. Another ſmall fort is attached to the north-weſtern extremity of the town: it conſiſts of a caſtle ſurmounted with towers for the diſcharge of artillery, and is farther ſtrengthened by walls and four ſtrong baſtions, as well as by a ditch ſimilar to the former. There are two ſuburbs, though at preſent almoſt in ruins, ſituated on the ſouthern and eaſtern ſides of the wall. Among the few inhabited, half-ruined houſes within the precincts of the city, and between the heaps of rubbiſh ſpread in every direction, we were peculiarly ſtruck with the large and capital metſhet, called Beeyouk-Dſham, and ſtanding almoſt in the centre of the place. It is a noble ſpecimen of ſimple architecture, and is kept in a ſtate of complete repair. This edifice is ſeventeen fathoms in length, and fourteen in breadth: its large dome meaſures

meaſures upwards of nine fathoms in diameter, and is on three ſides embelliſhed with eleven ſmaller cupolas. When I cauſed the proſpect of this town to be drawn from the ſide next the bay, as repreſented in the fourteenth plate, there were two *minarets*, or octagonal turrets, ſixteen fathoms high, and furniſhed with ſerpentine ſtair-caſes leading to the top; though both ſtructures have ſince been demoliſhed. A large Turkiſh bath, conſiſting of two principal vaults, ſtands in the vicinity of ſuch moſque: the latter, however, is now converted into a magazine; while the former is employed as the chief guard-houſe. The ſtreets of Kaffa have been planned with tolerable regularity; and, beſide the public edifices already ſpecified, this town has three churches; namely, one of good workmanſhip, belonging to the Greeks; another poſſeſſed by the Armenians, and a third by the Roman Catholics; farther, a *ſoi-diſant* palace allotted to the Archbiſhop of the Crimea; with a few good ſhops, and khans, or mercantile halls. But the unfiniſhed palace, commenced by Shahinghirei Khan, lies beyond the town on the bay-ſhore, as well as the mint built by the ſame prince; but the latter eſtabliſhment was ſpeedily relinquiſhed; and the buildings, appropriated to it, have lately been adapted to ſerve the purpoſe of barracks. The aqueducts, by which the whole town was formerly well ſupplied with water, were derived from the riſing eaſtern height, at the diſtance of five hundred and fifty feet.

It is much to be regretted, that the fiſheries in the bay of Theodoſia are almoſt totally neglected; as it eſpecially abounds with fiſh of paſſage, that frequent the Black Sea in numerous ſhoals. Beds of ſmall oyſters with thin, coloured ſhells, are un-

commonly plentiful towards the mountainous corner of the land, and as far as Koos. On the other hand, there are muſcles of a large ſort, frequently containing a number of diminutive pearls, that poſſeſs but an indifferent luſtre, and ſeldom exceed the ſize of hemp-ſeed. Their fleſh, however, is of an excellent flavour, and I have often counted in one of theſe ſhell-fiſh more than thirty of ſuch pearls. The Jacob's muſcle is, in theſe waters, likewiſe found in great abundance.

On the ſandy ſtrand, we met with the plants generally thriving near the ſea-ſhore; namely, the *Crambe maritima*, *Bunias Cakile*, *Salſola Tragos*, *Elymus*, and other marine vegetables. The moſt remarkable of theſe, however, was the *Meſſerſchmidia;* as I had not hitherto met with it in the Crimea, and as it probably occurs in no other parts ſituated ſo far to the Weſt.

The poſt-road from Kaffa to Kertſh conducted us over a conſiderable tract, along the ſandy ſhore of the bay, and over a ſimilar plain extending into the country, till we reached the next ſtage, or the village of Shiban, lying at the diſtance of twenty-two verſts. In theſe regions I noticed the *Aſtragalus tenuifolius* and *Onobrychis* growing to the ſame ſize as in other countries; whereas, in the calcareous parts of Crim-Tartary, theſe plants are of a diminutive and creeping figure. Nor has the *Cheiranthus montanus*, which flouriſhes here, been found in any other quarter of the peninſula.—At length, we loſt ſight of the bay.—On the eaſtern ſide of the village laſt mentioned, we obſerved an elevated line, mingled with numerous ſcattered ruins of ſtone, and exhibiting ſmall eminences or hillocks compoſed of rubbiſh, which lie at moderate diſtances from

from each other. This line is ſaid to extend northward as far as the ſea of Azof, and here appears, at the higheſt part of its ſurface, to proceed directly Eaſt and Weſt, for ſeveral verſts; after which it apparently turns more to the South, towards the bay of Theodoſia. According to the information I have been able to collect, theſe mural veſtiges are moſt evident between Porpatſh and Korfetſh: they continue their courſe from Shiban to the South-weſt, towards the lake and village of Türeké; then towards Sarigoll and Adſhikall, where the wall has been joined to the mountains riſing in the vicinity of Kaffa. Fragments of ſtone are perceivable both on the ſtraight line and on the ſurrounding prominences. In one place near Shiban, a projecting border of rocky ſquare maſſes has been connected with the wall. The hillocks, here alluded to, are from ſixty to eighty paces in diameter; and the intermediate diſtance is generally not leſs than one hundred and eighty paces. On the weſtern ſide, there are a few indiſtinct traces of ditches, together with many pits, that have probably ſupplied the clay uſed in building the wall. It ſcarcely admits of doubt, that theſe veſtiges indicate the very ancient rampart, erected by ASANDER acroſs the peninſula, for its defence; and of which STRABO* gives an account: the diſtance between the towers, however, not correſponding with that before

* "*Nomades bello magis, quam latrociniis, ſunt dediti; bella gerunt propter tributa: agros enim ſuos colendos iis, quibus lubet, concedunt; contenti, pro locatione, certo ſtipendio, eoque non ad abundantiam, ſed ad neceſſarios quotidianæ vitæ uſus temperato; et non perſolventibus bellum inferunt.—Quod autem ſtipendia non ſolvunt alteri, id faciunt viribus ſuis confiſi, quia aut propulſare adventantes, aut etiam aditu ſe poſſe arcere ſentiunt; id quod Aſandrum feciſſe ſcribit Hypſicrates, qui iſthmum peninſulæ ad Mæotidem CCCLX ſtadiorum muro ducto munierit, denis turribus in ſingula ſtadia conſtitutis.*"—*Strabo, Lib. VII.*

obſerved

obſerved between the heaps of ruins, the hiſtorian has perhaps ſtated it to have been ſmaller than it really was, when he omputes the intervening ſpace at about ten fathoms of modern meaſurement.

Having advanced in my journey to the vicinity of Arabat, I was anxious to viſit the fort of that name, and the iſthmus thence proceeding into the ſea. The diſtance from Shiban to this place is only twelve verſts; travelling over arable lands, plains, and hollows: ſome of the latter have a ſoil impregnated with ſalt, and are almoſt covered with the *Centaurea glaſtifolia*.

The ſmall fort of Arabat lies immediately at the commencement of the iſthmus, between the Sivaſh and the ſea of Azof: it defends, by this neck of land, the entrance into the Crimean Peninſula. The fortifications repreſent a polygon, very durably faced with hewn lime-ſtone; having ſeven regular baſtions, with a dry foſſe, alſo lined with ſtone. Towards the Sivaſh, there is a long intrenchment, and a ſhorter one in front of the ſea, with contiguous batteries; the whole being conſtructed of free-ſtone. Beſide a metſhet with its octagonal tower, both of which are well built of ſtone, and a wretched houſe for the Governor, the fort preſents only a few huts, partly above ground, and partly under the wall, for the accommodation of ſoldiers.—The iſthmus is here ſeveral hundred fathoms broad; and the land at firſt uniformly conſiſts of teſtaceous ſand, in which ſome thinly ſcattered vegetables thrive with luxuriance. On advancing farther, the ſurface of the ſoil exhibits common ſand, which is more or leſs conſolidated, and of a ſaline nature, ſo as to produce the *Statice ferulacea*, and a few *Polycnema*.

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The eaſtern ſhore diſplays numerous ſpecimens of *Pectinites*, *Tellinæ*, and other ſhells. Among the plants growing in this region, the following are the principal; namely, the *Elymus* and *Eryngium maritimum*, *Daucus muricatus*, *Crambe orientalis* and *maritima*, *Gallium proſtratum*, *Aſperula cynanchica*, *Aſtragalus Onobrychis* and *virgatus*, *Achillea tomentoſa*, *Bunias Cakile*, *Centaurea paniculata*, *Coronilla varia*, *Medicago falcata*, *Thymus Zygis*, *Cheiranthus eryſimoides*, *Potentilla recta*, *Teucrium Polium*, *Atriplex portulacoides*, *Statice Limonium*, *Artemiſia Auſtriaca*, *Plantago media* and *lanceolata*. We alſo frequently met with the *Coluber Berus*, and the white downy Cock-chafer, that appears in June.—The length of the iſthmus, as far as the ferry leading to Jenits-khe, is computed to be one hundred and ten verſts. This narrow track of land is much frequented by carriers from Little Ruſſia: they import proviſions into the Crimea; and in return take other commodities, eſpecially fiſh, of which large quantities are caught in the ſea of Azof.

On leaving Arabat, I firſt purſued a collateral road, along the ſea laſt mentioned, as far as the village of Akmonai: in its vicinity are ſome old wells, lined with maſonry-work, within a deep glen that extends towards the ſea; and on the ſurface of which appears the calcareous ſtratum. Immediately behind the village, a few verſts from Arabat, there is a quarry, whence the ſtones were obtained for erecting the fort. This foſſil is of a ſoft texture, compoſed chiefly of teſtaceous fragments; the bulky layers of which lie about a fathom above the level of the ſea. Incumbent on this bed of lime-ſtone is a flat eminence; from the ſteep back of which we paſſed by the Tartar village of Oggus-tebé, or the Bullock's Hill, a name derived from

ſuch

ſuch elevation. All the Tartars, who inhabit the Crimean plains, and the whole peninſula of Kertſh, are obliged to employ an artificial turf prepared with dung, as a ſubſtitute for fuel; and, as the aſhes of this combuſtible are accumulated in heaps contiguous to their dwellings, I am inclined to think that large quantities of excellent nitre might thence be extracted. There are no orchards to be ſeen throughout the peninſula of the Boſphorus. The arable land here conſiſts of an uniformly black mould, and is remarkably fertile. A few low grounds, impregnated with ſalt, extend to ſome diſtance from the village. In other reſpects, the country was level, till we had paſſed the ſucceſſive villages of Aleeby and Keeyat, as well as the ſtage of Wogibeleé, Aibeleé, or, as it is ſometimes called, Ogibel, which is embelliſhed with a metſhet erected of ſtone; and where we again reached the poſt-road, after a journey of fourteen verſts from Shiban. But, in this neighbourhood, flat ridges begin to riſe acroſs the peninſula, in a tranſverſe direction; being perceptibly ſteeper on their weſtern ſide, and alternately interſected with broad plains and hollow grounds, which proceed to both ſeas. The black ſoil produces numerous plants, ſuch as likewiſe grow on the ſteppes. The common lizard, *Lacerta agilis*, is here, as well as in the plains around the Karaſſu, of a very large ſize; being in general of a graſs-green colour, ſometimes ſpotted, or even of a browniſh hue, and exceedingly numerous.

Our next ſtage was Argin, a depopulated Tartar village, fourteen miles diſtant from Arabat. It preſents, however, a reſpectable metſhet, built of free-ſtone, wherein are cut many paſſages from the Koran; ſeveral tomb-ſtones, ſome of which

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are unuſually large, being placed around this houſe of prayer. All the minerals here exhibit conglomerations of teſtaceous ſand and broken ſhells; and this horizontal bed of marine lime probably ſpreads over the whole peninſula of Kertſh; though it is diſcernible only in a few places above the vegetable ſoil.

A remarkable hillock, called Dſho-tübé, or Dſhal-tübé, lies at the diſtance of about five verſts and a half to the ſouth of the poſt-road, and near a village of the ſame name. It is ſituated at the ſide of the road leading from the village of Koſhai (between Shiban and Aibelé) to Kulaſſin; paſſing the borders of the lake alſo called Koſhai, over an uneven country, about ten verſts to the north of the Black Sea, and about eight verſts from the village of Dürmeen, at the commencement of a deep trench formed by torrents of rain-water; and which proceeds towards the rivulet Kirgis, and the ſalt lake Katſhik. This eminence has ariſen from one of thoſe ſurprizing *eruptions of mud*, occurring both in the peninſula of the Boſphorus, and in the Iſle of Taman; ſeveral of which I ſhall preſently mention, and endeavour to explain their origin, together with their nature. The Tartars well remember the burſting forth of fire, that preceded the formation of this hillock, and of the muddy ſource it exhibits: they conſider it as the reſidence of evil ſpirits, which cannot be approached without imminent danger. On its top is an open crater, whence the mud, or mire, that is not yet covered with verdure, has iſſued in an eaſterly direction towards the village, and filled part of the trench above mentioned to upwards of half a verſt in length. In the winter, and during wet ſeaſons, it ſtill appears in a fluid ſtate; but, in ſummer, the ſurface of the gulf is ſufficiently dry to

admit a perſon to walk over it. The ſubſtance itſelf conſiſts of a grey, tolerably tenacious clay, mixed with fragments of a ſtony foſſil; and pieces of pyrites have alſo been diſcovered among the mingled matters. In the vicinity of this eruption, there occur a few ſprings productive of rock-oil.

Four verſts before we reached the village of Aggös, or Akkos, which is twenty-two verſts diſtant from the ſtage of Argin, and conſequently thirty verſts from the town of Kertſh, we could diſtinctly trace the ſtrong boundary drawn by a rampart and ditch over the elevated plain, which has an undulated appearance, and is covered with rich verdure. Such line of demarcation has, in former ages, unqueſtionably ſerved to ſeparate the empire of the Boſphorus from the poſſeſſions of the Cherſonites: it is in a tolerable ſtate of preſervation; being overſpread with tall and luxuriant plants, among which the *Centaurea Tatarica* begins to predominate; and we alſo noticed numbers of the *Myrmeleon libelluloides* flying about in the month of June, even during a tempeſt. The baſis of this prodigious rampart meaſures nearly forty arſhines, or about thirty-one Engliſh yards, in diameter; and the ditch, on its weſtern ſide, is almoſt twenty arſhines, or half the breadth of the former. Both may be ſeen from the road, which interſects them, aſcending the heights in a ſtraight weſtern direction; though, at a ſhort diſtance from the road, on the right, there is towards the weſt a conſiderable hillock accumulated on the rampart; at the ſide of which appears a cleft, or opening, with many large ſtones ſcattered around it; thus rendering it probable, that a gate, or tower, formerly ſtood in ſuch place. The line, before deſcribed, now turns, between North-weſt and

and North-north-weſt, directly towards the ſea of Azof. In its courſe to the South, however, it does not reach the Black Sea, but terminates at the northern extremity of the ſalt lake Itar-Altſhik; which is upwards of eight verſts in length. CONSTANTINE PORPHYROGENETUS apparently relates the occaſion on which this ſtrong frontier was raiſed between the Greeks of the Boſphorus, and the Cherſonites, who were, in thoſe remote ages, involved in continual wars*. In one of theſe conteſts, which broke out during the reign of the Emperor Conſtantine, the crowned Protevontes conquered Sauromates, King of the empire of the Boſphorus, in the vicinity of Capha; where the boundary was fixed in conſequence of ſuch victory. But as, a few years after, another Sauromates, ſovereign of the Boſphorus, violated this treaty reſpecting the territorial limits, and was ſubſequently overcome in a duel by Protevontes Stephanophorus, the Pharnaces of the Cherſonites, the inhabitants of the Boſphorus were compelled to withdraw their frontiers as far as *Cybernitus*, that is, only forty *milliaria* diſtant from the city of Boſphorus. I accidentally obtained at Kertſh a very ſcarce copper medal, of the ſize of half a guinea, but of very indifferent coinage; which ſeems to have been ſtruck on this important occaſion. On one ſide it repreſents a crowned head, with the following inſcription:

BACHAEWC CAYPOMATEC.

* STRABO, perhaps, likewiſe ſpeaks of this rampart, when he ſays: "*Cimmericum urbs fuit quondam in peninſula jacens, iſthmum foſſâ et aggere claudens. Fuit quodam tempore magna Cimmeriorum in Boſphoro potentia, qui et Cimmerius ab iis dictus fuit. Hi ſunt, qui regiones Continentis a dextra Ponti ſitas, uſque ad Ioniam incurſionibus vexaverunt. Atque hos quidem Scythæ iſtis e locis expulere; Scythas Græci, qui Panticapæum et alias in Boſphoro urbes condiderunt.*"

On the reverſe of the coin is repreſented a warrior on horſeback, ſtretching out his right arm; and, detached from the horſe's breaſt, there appears a ſmall bearded head, ſevered from a human body.

On leaving Akgös, or Akkos, we firſt obſerved an elevated plain of immenſe extent; after which the country towards Kertſh (being twenty-ſix verſts diſtant) becomes more hilly, and exhibits a very ſingular appearance, on account of the numerous prominences formed on the heights; ſuch as I do not recollect ever to have ſeen in any of my former travels. Between the heights are vallies, ſpreading in an eaſterly direction towards the narrow channel of the ſea; and, after croſſing one of ſuch dales, we arrived at the town and fortreſs, which I ſhall preſently deſcribe.

Kertſh, formerly called Boſphor, is ſituated in that part of the Boſphorus, which expands towards the Black Sea, on a ſomewhat projecting neck of land, having a boggy and fetid ſhore, but forming a ſafe bay with excellent anchorage, from eleven to fifteen fathoms in depth. The fort is built of free-ſtone, on the old plan, tolerably high, with angles around it; being on the ſouth ſide ſtrengthened with a horn-work contrived by the Ruſſians, and which is alſo lined with ſtones, in order to command the entrance into the harbour. Over the gate leading to the citadel, we at one ſide noticed a marble figure repreſenting the lion of the Venetian republic; and, in the wall of an ancient building, now employed as a magazine, we obſerved an old white marble cornice of excellent workmanſhip. Beſide a very antique Greek church, there formerly was, within the fortreſs, a variety of old decayed buildings,

buildings, that have lately been demoliſhed, with the view of employing the materials for erecting barracks. On digging up the foundations, many old tombs, and other monuments of antiquity, were diſcovered; but they have, for the moſt part, been ſecreted by the labouring ſoldiers; or the inſcription-ſtones have again been uſed in the conſtruction of new edifices. The Greek church, before mentioned, is a Gothic vaulted building in the form of a croſs, reſting with its dome on four columns of grey marble; and its arched cieling is about five fathoms high. On the plain ſurrounded with heights, towards the north and weſt ſides of the fort, a ſmall number of houſes are irregularly diſpoſed, and preſent a kind of ſuburb, without a market-place. The inhabitants of Kertſh are not numerous; amounting only to fifty-ſeven merchants, and one hundred and nineteen artiſans of the male ſex; and the latter of whom are moſtly Greeks, that maintain their families by the fiſhery.

The battery of Pavloffkoi, erected on the ſhore at the diſtance of a few verſts to the ſouth of the fort, forms, together with another denominated Alexandroffkoi, the proper key to the Boſphorus and the ſea of Azof; becauſe the ſtreight is here naturally contracted, not only by the Youſhnaya-koſſa, or ſouthern point of land proceeding from the ſhore, as well as by the ſmall iſles and ſhoals ſituated in a north-weſtern line with the former, but likewiſe in a ſtill greater degree by the adjacent ſand-banks; ſo that the channel is leſs than four fathoms in breadth, and the roads are from twenty-two to twenty-ſix fathoms deep: hence the veſſels, navigating ſuch ſtreight, are obliged to paſs cloſe under the cannon mounted

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on theſe batteries. Throughout the ſummer, a frigate is ſtationed here for guarding the Boſphorus; but, on the approach of winter, it returns to Akhtiar, as the ſtreight is uſually covered with ice. At a ſmall diſtance from this guard-ſhip, the quarantine of Kertſh has been eſtabliſhed on ſhore; though it has hitherto afforded but very few conveniences for mariners; there being only ſome indifferent houſes, and a vineyard originally planted by ſlaves imported from Georgia.

It has frequently been propoſed to appoint at Kertſh a general quarantine for all veſſels frequenting the ſea of Azof: by this regulation, the Ruſſian empire would derive many advantages. The firſt and moſt eſſential would certainly be that of inſuring, to the interior provinces, perfect ſafety from epidemic infection, which can with difficulty be prevented on the very extenſive, and on every ſide acceſſible, coaſts of the ſea laſt mentioned: in the next place, the expences of quarantine and centinels, which muſt neceſſarily be ſupported at Taganrog and other places, might be eaſily ſaved; laſtly, ſuch meaſure would greatly facilitate both the export and the coaſting trade, which are at preſent extremely defective. Thus the town of Kertſh would ſpeedily receive an additional number of inhabitants; become a kind of emporium for Ruſſian commodities; and ſhips of conſiderable burthen (which cannot paſs through the Boſphorus, on account of its waters being only from fifteen to ſixteen feet deep) could here be laden at a reduced freight, as they might in one ſummer perform two voyages. Farther, the barges navigating the river Don, and ſupplying the port of Taganrog with grain, iron, hemp, ſail-cloth, and maſts, would doubtleſs give the preference to that

of

of Kertſh; becauſe the latter is incomparably more convenient for the loading of veſſels. Notwithſtanding all theſe evident advantages, that would greatly contribute to the proſperity of the Crimea, the plan before ſtated has always been oppoſed by the wealthy merchants of Taganrog, who foreſaw in it the decline of their trade, and ſpared no pains to prevent its execution. On the other hand, the eſtabliſhment of a general quarantine at Kertſh would be attended with little or no expence to Government; becauſe the ſituation of the ancient fort cannot be better adapted to the purpoſe; and, by walling up one of its gates, it would preſent only one entrance. There are likewiſe a ſufficient number of barracks in this fortified place; and the ſhips, which at Taganrog are obliged to lie on muddy ground, ſo that they can be laden only with great difficulty, could at Kertſh proceed cloſe to the ſhore of the fortreſs, which is encloſed with a proper ſtone-wall.

The environs of Kertſh are more mountainous than the commencement of the peninſula of the Boſphorus. The ridges, which project on its ſurface not unlike girdles, become progreſſively more elevated; and the laſt three of ſuch eminences deſerve particular notice. They are ſituated in the form of ſucceſſive creſcents, the extremities of which riſe towards the Boſphorus, ſo as to terminate in rocky promontories at the coaſt; though the intermediate ſpace conſiſts of vallies expoſed on the ſea-ſide. The *extreme* ſemi-circle commences near cape Kara-burun, and is apparently connected with the rocky point of land, ſituated to the north of Yeni-kalé. Between theſe and the moſt projecting corner of the Boſphorus, termed Takilmuis, there appears the ſalt lake known

by

by the name of Shungulek, which is ſeparated from the ſea only by a tract of ſandy ſhore. The *ſecond* ſemi-circle begins in the vicinity of the Kamyſh-burun, which is interſected with ſmall lakes; and it alſo takes a northerly direction about Yenikalé, where it at length combines with the former. On the ſouthern ſide, between this and the preceding hilly creſcent, we met with a lake called Tſhurabaſh. Laſtly, the *third*, or innermoſt of ſuch mountainous girdles, ariſes on the left of the fortreſs, together with the Ak-burun; deſcribes around the plain of Pantikapaeum, between Kertſh and Yenikalé, a ſemi-circle (the direction of which correſponds with that of the bay); and, with its oppoſite extremity, forms thoſe heights near the ſhore, on which Yenikalé itſelf is ſituated. The quarantine, above alluded to, lies at a ſhort diſtance from the ſea, between the laſt and the ſecond of thoſe ridges. There are two inconſiderable rocky promontories betwixt Kertſh and Yenikalé: they appear to be parts of a fourth circular eminence, the progreſſive curve of which diſappears with the level country. The ſurface of all theſe ridges exhibits lime-ſtone, which is remarkably ſoft in the interior circle, being throughout compoſed of teſtaceous fragments; yet, notwithſtanding its poroſity, it is of a harder conſiſtence in the two other girdles, where it appears in a manner corroded, and is generally filled with the *Eſchara lapidoſa*. On account of the numerous prominences on their ſummits, and which at a diſtance reſemble prodigious ſepulchral hillocks, the ridges preſent a very uncommon appearance; though their whole elevation, according to a menſuration taken on the ſpot, does not exceed three hundred feet above the level of the ſea. The interior of ſuch ridges,

ridges, or that ſituated next to Kertſh, is particularly conſpicuous; as we counted, on its top, about ſixty of theſe hillocks of different ſizes. On the ſucceeding ſemi-circle, though fewer in number, they are larger and more rocky; being arranged nearly in two rows: on the third, however, they are leſs conſiderable. Many of the prominences, juſt mentioned, exhibit layers of lime-ſtone, frequently two arſhines in thickneſs; being decayed in their circumference, apparently fallen down, and placed on each other in detached maſſes. Of a ſimilar nature and conſtitution is the reputed *Altyn-obo**, four verſts from Kertſh, near the poſt-road, and which is ſuppoſed to contain the tomb of MITHRIDATES; though ſuch monument ought not to be ſearched for in the Crimea. Contiguous to the hill, laſt alluded to, there terminates a kind of rampart, which appears to have been drawn acroſs a part of the angle formed by this peninſula; and a ſimilar mound is alſo diſcernible near Melek, about four verſts from Kertſh. The level vallies occurring between the eminences, as well as the plain ſituated between Kertſh and Yenikalé, are apparently ſunken. And, though I am not immediately diſpoſed to attribute this external form of the country to ſubterraneous effects, that may probably have occaſioned it, yet many indications prove beyond all doubt, that both the peninſula of the Boſphorus and the Iſle of Taman contain layers of kindled inflammable matter, which have not only produced the abyſs of Dſhaltübé above mentioned, but alſo cauſed many

* This hill is compoſed of large maſſes of wacca; and a tradition prevails among the Tartars, according to which it contains a treaſure, that is guarded by a virgin who here ſpends her nights in lamentations.

other ebullitions of mud, in the vicinity of the Boſphorus. Beſide thoſe to be mentioned in our farther progreſs towards Yenikalé, we met with ſimilar eruptions, that were ſtill in an active ſtate, on the height contiguous to a deep glen, which extends towards Kertſh; after we had advanced eight verſts from this place in a direct northern line towards the deſolated village of Dſhiolow-Tarkhan, and at the diſtance of two verſts and a half from the ſhore of the ſea of Azof. In the ſame country are ſprings, having inſpiſſated rock-oil on their ſurface. They afford an inconteſtible proof of ſubterraneous ſublimation.

The ancient city of Pantikapaeum, which, according to Seylax, was ſituated at the diſtance of twenty ſtadia from Carianda, or about four verſts from the entrance of the Mæotic Sea, certainly ſtood nearer towards Kertſh; namely, in the plain intervening between the laſt-mentioned fort and that of Yenikalé. This part of the level tract, on which large heaps of ruins are in every direction diſcoverable, was formerly inhabited, but is now entirely covered with the *Harmala*; a plant that delights in a nitrous ſoil. Diſtinct veſtiges of the foundation of a tower, meaſuring twelve arſhines in diameter, and having originally been ſurrounded with a ditch, are ſtill perceptible near the ſea-coaſt. On deſcending farther into the valley, we obſerved many other traces of buildings; and the whole ſurface of the ancient town, being razed to the ground, is diſtinguiſhed by a groupe of more than fifty large hillocks ſcattered to a conſiderable extent, and containing ſepulchral urns. One of theſe eminences has been partly demoliſhed by the encroachments of the ſea, ſo as to exhibit the fragments

of

Fig. 1

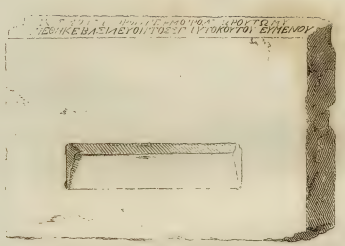

Fig. 2

Fig. 3

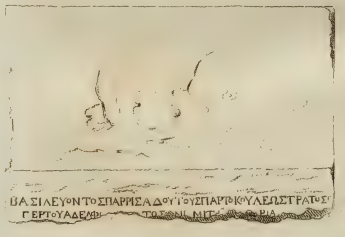

Fig. 4

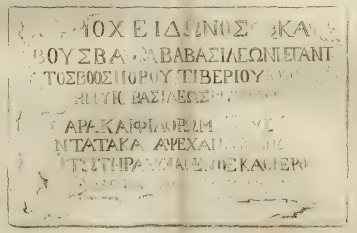

Fig. 1

Fig. 4

Fig. 5.

Fig. 4.

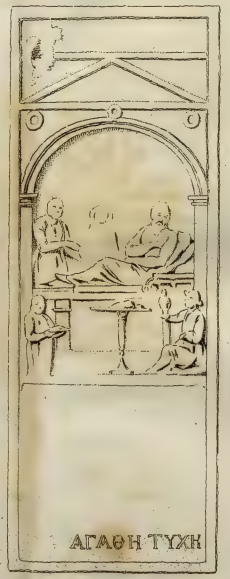

Fig. 2.

Fig. 1.

of ſuch earthen veſſels. At a more northern, though ſmall and rocky corner of the land, we alſo noticed pieces of urns projecting out of the ſhore; and, on a ſimilar promontory which terminates the bay of Kertſh, we obſerved the ruins of a fort, that had been erected of ſtone. In the environs of the ancient city, there are frequently found ſpecimens of marble which have been employed in architecture, as well as ſtones wrought in *bas-relief*, with inſcriptions, moſtly of a rude workmanſhip. Some of theſe monuments are fixed to the walls of the old Greek church at Kertſh; others I had an opportunity of inſpecting in the houſe inhabited by the commanding General. Among the former was the ſtone repreſented in the ſeventeenth plate, Fig. 1.; and it is not only remarkable for its high antiquity, which relates to the times of Mithridates and Pariſades, the laſt King of the Boſphorus; but alſo on account of two footſteps on its upper ſide, completely reſembling the impreſſions made by the ſhoes of a man; while they bear not the leaſt mark of having been produced by the chiſſel. The ſtone itſelf conſiſts of grey marble; is about two arſhines, or four feet eight inches, long; one arſhine broad; and a ſpan in thickneſs: it covers a front wall of the entrance into the church.—At a ſhort diſtance from this ſtone, my attention was arreſted by another, delineated in the eighteenth plate, beſide thoſe preſerved in various parts of the church wall; but which deſerve no particular enumeration. Laſtly, in the houſe of the clergyman reſiding at Kertſh, I took notice of a marble ornament, with a *bas-relief*, that repreſents a *Triclinium*, and has the following inſcription: ΑΓΑΘΗ ΤΥΧΗ, Fig. 2. This monument, I underſtood, has been brought hither from an ancient foun-

tain lined with ſtone, being ſituated to the weſt of the poſt-road leading to Kertſh. We met, however, with another excellent fountain near the preſent town of Kertſh; and it is evident, from the inſcription attached to ſuch erection, that the whole is of modern Turkiſh workmanſhip.

Yenikalé lies at the diſtance of eleven verſts from Kertſh, on the angular ſouthern extremity of the peninſula which contributes to form the Boſphorus Proper, or Channel of the ſea of Azof. The fortreſs is ſituated on an eminence abruptly declining towards the ſhore, in the form of an amphitheatre; and repreſents a very irregular polygon, conſiſting throughout of ſtone, and conſtructed by the Turks: at the north-weſtern corner, a very high baſtion is raiſed againſt the adjacent height; and a ſmaller one on the ſouth-eaſtern angle fronting the ſea, where the quarantine is likewiſe eſtabliſhed: the other connected works are angles of defence, without any order. The town is built along the ſea, to the ſouth-weſt of the citadel; having but few conſiderable houſes, and one row of booths. Its male inhabitants, or houſekeepers, do not exceed one hundred and ninety in number; fifty-three of whom are dealers or tradeſmen, and one hundred and thirty-ſeven are citizens, moſtly of Greek families. There are ſcarcely any other buildings worthy of notice within the fortreſs, except the church, that formerly was a metſhet; the Governor's houſe; the edifice purpoſely erected for an apothecary's ſhop, or warehouſe, provided with good cellars, but the whole of which now ſtands empty; and ſeveral barracks. Beneath the ſmall baſtion, is a ciſtern capable of holding water ſufficient to ſupply the garriſon for three days; and which is conducted through

through pipes. A marble ſarcophagus is placed below the ſpout of the conduit, and ſerves as a reſervoir: we were informed, that it has been tranſported hither from the iſle of Taman.

Independently of the monuments of antiquity already deſcribed, I found in the Governor's reſidence ſome other fragments; which, at my requeſt, were firmly placed in the wall, and thus preſerved. Two of them are delineated in the eighteenth plate, Fig. 3 and 4. The former of theſe is rather more than ſix ſpans high, and two ſpans broad; the latter is of a ſimilar breadth, but leſs than four ſpans in length. Near the quarantine, we farther obſerved on the ground the bodies of two headleſs lions, which have, by order of Government, alſo been conveyed hither from the iſle of Taman, and are relics of the former Venetian ſovereignty over this place. Laſtly, in their vicinity lay three beautiful columns of grey marble, longitudinally veined in a parallel manner, together with two capitals coarſely hewn in *bas-relief*.

The valley, extending from the northern part of the town to the ſea, was in former times wholly covered with orchards; of which, however, a few only remain at preſent. On leaving the fortreſs, we proceeded in a north-eaſterly direction along the ſhore of the Boſphorus; and, after paſſing the ſcattered orchards, we reached, at the diſtance of little more than a verſt, a low ſaline country, which is generally inundated during wet ſeaſons. At its northern extremity we met with ſome remarkable ſprings, iſſuing from the declivity of a ridge that advances towards the ſtratified heights bordering on the Boſphorus. Two of theſe wells are ſituated at the foot of the

the eminence, ſeveral hundred yards from the ſea, and only a few paces diſtant from each other; namely, that to the north is of a ſaline nature, has a very bituminous taſte, and flows nearly two arſhines lower than the ſouthern ſpring; which contains a larger proportion of ſalt, but is not bituminous, and in its progreſs combines with others. In the riſing ground, immediately above the wells, there appear ſeveral pits dug for the purpoſe of collecting the rock-oil, which oozes through the ſides of the earthy ſtratum.

Beſide the two ſituations above ſpecified, I ſhall, in this place, incidentally mention all the ſprings productive of bituminous or rock-oil in the peninſula of the Boſphorus; whence ſuch combuſtible was formerly collected by a detachment of artillery, for the uſe of the ordnance.

1. Near the deſerted village of Iryäl, five verſts from Kertſh.
2. Near the village of Seit-Alee, thirty-three verſts from Kertſh.
3. In the vicinity of the village and ſalt-lake of Shungulek, of which I ſhall ſpeak in the ſequel.
4. Near Kopinee-gos, twenty-four verſts from Kertſh, in the neighbourhood of the ſame ſalt-lake.
5. Near Yarmoi-Katſhik.
6. Between the hillocks bordering on the ſaline lake Miſir, towards the ſea of Azof, and eight verſts from Kertſh.
7. In a flat valley on the road to Arabat, thirty-three verſts from Kertſh; where, during the whole ſummer, ſcarcely two eimers of rock-oil could be collected from nine pits opened for that purpoſe.

On

On proceeding about two verſts to the north of the bituminous ſources, and following the ſhore of the Boſphorus towards the ſea of Azof, we diſcovered on an eminence, at the diſtance of one verſt from the ſea, various muddy eruptions, that were partly in an active and partly in a dry ſtate, extending in a line from North-eaſt to South-weſt. The largeſt of theſe is the laſt in a northern direction; having formed a conſiderable prominence, and ſtill throwing up ſoft mire and bubbles, even during the ſummer: the others are reſpectively ſmaller; being ſituated in a ſeries at eighteen, fifteen, thirteen, and twenty, paces from one another. Some of them have ſeveral apertures; and the ſurrounding ſoil yields ſlightly beneath the feet, not unlike that of a drained moraſs. The hill, exhibiting ſuch phenomena, is ſeparated from the ſuperior heights, and occurs between the ſhores in the middle of the country.

On theſe eminences, near a farm-houſe, almoſt north from the city, are ſome good ſprings, the water from which is conveyed acroſs a broad valley to Yenikalé, by means of an aqueduct reſting on fourteen arches of maſonry-work; and which is probably of Turkiſh conſtruction. The arches are about two fathoms high, and one fathom and three quarters broad. Several of them are at preſent in a ruinous ſtate.

The conveyance to the iſle of Taman is by means of large boats; and, during ſtormy weather, is frequently attended with danger. To the Severnaya-Koſſa, where the narrow northern peninſula, together with the European coaſt, forms the Boſphorus,

phorus, properly ſo called, the paſſage is only four verſts, and is ſafer; but, as there is no village in that neighbourhood, in which travellers can be ſupplied with horſes, it is uſual to croſs the Gulf of Taman, or *Tamanſkoi-Saliv* tranſverſely, near the point of the Severnaya-Koſſa, to the city of Taman. This paſſage, being eighteen verſts, is rendered equally dangerous by ſudden guſts of wind, as well as by the numerous ſhoals, and the continual agitation of the eddy, even in calm weather.

The Boſphorus has generally a ſuperficial current running outwards, when it is not impeded by the wind. In making this paſſage directly to the Severnaya-Koſſa, during calm weather, there is a ſmooth line diſtinctly perceptible in the narrow channel beyond the ferry, where the yellowiſh ſtream of the ſea of Azof meets the dark ſalt water of the Black Sea. The ſoundings are from ten to ſeventeen feet; and the greateſt depth is along the European coaſt, at rather more than a verſt from the land: at this part, when paſſing Yenikalé, it progreſſively increaſes from fourteen to ſeventeen, nineteen, and twenty-two feet; but, in the ſea of Azof, it again diminiſhes to ſixteen and fourteen feet. The direction of the Narrow Canal, properly ſo termed, is South-weſt and North-eaſt, being only four verſts in length. The breadth of the Boſphorus is thence enlarged by the inlet near Kertſh, and by the oppoſite Gulf of Taman: it now becomes contracted to about three verſts, both by the Youſhnaya-Koſſa, which is only four verſts from the Severnaya-Koſſa, and by the iſlands which form a continuation of its point. Thus it ſerves as the moſt convenient ford for cattle and horſes, on account of the numerous

ſhoals

ſhoals on which they can reſt. In moderately cold winters, the Boſphorus, as well as a great part of the Sea of Azof, is covered with ice; which is principally occaſioned by that drifted down the river Don. In ſevere winters, it may be paſſed with loaded carriages; and the ſpring is frequently advanced as far as the month of May, before all the ice is diſſolved. From this circumſtance, the account given by Strabo* is not improbable, "that the Generals of Mithridates had engaged the inhabitants of the Crimea with cavalry in the winter, on the ſame part of the Boſphorus on which a naval battle had been fought in the ſummer."

In the Boſphorus, and along the whole coaſt, the fiſhery is very profitable, particularly for the different ſpecies of ſturgeon: they are caught in great quantities with nets and lines, as well as by means of a cord to which hooks are attached, ſo as to float on the water. Such is the principal employment of the Greeks of Kertſh, who frequently take from three to four hundred thouſand ocka, or from twenty-four to thirty thouſand poods of fiſh, in one year. The tranſparent red backs, termed *Balyki*, and the bellies of theſe fiſh, called *Toſhi*, cut in ſlices, then ſprinkled with a little ſalt-petre, and dried in the air, are, notwithſtanding their difficult digeſtion, in great requeſt, particularly in Ruſſia and in the Iſlands of Greece, where they are

* *Lib. VII.* "*Gelu autem quâ ſit vehementiâ, maxime ex iis intelligi poteſt, quæ apud fauces Mœotidis fiunt. Etenim trajectus, qui inter Phangoream et Panticapæum, plauſtra ita fert, ut et viatrita et cœnum ibi ſit. Et in glacie deprehenſi apud Gangaman piſces effodiuntur, maxime Antacæi, Delphinos magnitudine æquantes (Huſones): ac in eodem trajectu ferunt Mithridatis legatum æſtate navali prælio, hyeme equeſtri pugna barbaris ſuperiorem diſceſſiſſe.*"

eaten on faſt-days. When they have been repeatedly waſhed and rubbed over with freſh oil, they may be kept in an open ſhady place for a number of years, and are then held in ſtill greater eſtimation. Theſe fiſh were noticed by Strabo: they are not, however, cut out of the ice during winter, as he aſſerts, but are taken with hooks immerſed under it, through holes made for that purpoſe. The preſſing and ſalting of *caviar* are likewiſe well underſtood by the Kozaks of Tſhernomorſki; but they are not equally expert in preparing iſinglaſs.

During our paſſage over the Boſphorus to Taman, we diſtinctly perceived the volume of vapours, which hangs over the iſland in calm weather. Theſe vapours, which reſemble a thick miſt, together with the many deep ſources of mud and rock-oil, are indubitable proofs that there is burning, at a conſiderable depth under the iſland, a quantity of inflammable matter, which is the cauſe of this phenomenon, as well as of the extreme heat and humidity of the ſoil. A ſimilar exhalation is more or leſs perceptible upon the coaſt of Yenikale, where the ſame cauſe evidently prevails.

The ancient Greek name of Phanagoria, which, on the occupation of Crim-Tartary was improperly given to the old city of Taman, does not, in my opinion, belong to it; as the denomination of Tmutarakhan, by which it was known under the former government of the Ruſſian Princes, ought to be reſtored to this place. Old Taman, or Tmutarakhan, has been of conſiderable extent, and was built among heaps of ruins: its intrenchments were about two verſts and a half in circumference, from ſhore to ſhore, and one verſt and a half along the

A
SPECIAL MAP
OF THE
ISLE OF TAMAN.
SEA OF AZOF
Village of Kisdar
Fort encompassed with Ditches
Cape Fanary
YENIKALE
Battery of Pavlokkoi
Battery of Alexandrofskoi
THE BOSPHORUS
Youshnaya Kosa or South Point
Severnaya Kosa or North Point
Tiuk
Beeyouk Bushuk Village
Village of Kichi Bushuk
Village of Kobanee
Ischokrak Kioi
Kubaitko
Tuzhukai
Gaitee
Kan
Mukayouki
Tudor Mt
Kunnabasia
Shumukai
Shumukai Mt
Andrei
Ottoh
Marshy
TAMANSKOI-LEEMAN or GULF OF TAMAN
Tasha Kooultuch
Salt Lake of Kutuk-Tuzla
The New Fort
Kishlai
Mt Issodagh
TAMAN
Mounie
Kirkel
Muddy Source
Kishlai
Tokurofski
Rocks
Hassan
Hadjee
Sadi Lake
Kermissa
Mt Ishaldee
Beeyouk-Oba
Kutshuk
Oba
Beeyouk Adukan
Kutshuk Adukan
Olush
Oshumuk
Sudshuk
Suyutkee Mt
Ekaterinaskaya
Villages formerly inhabited by the Kozaks of Nekrassov
TEMRUKSKOI LEEMAN or AKI-TENGIS
TEMRUK
Bolshoi Kandaur
Dshilamme Mt
Yshamaktovessi
Kandowr
Petibrodi
Kuban River
Route to Kopeel
Kurkee
Bosch Oba or the 5 Hills
YOUSHNOI-KUBANSKOI LEEMAN
BUGAS
Russian Guard-house
Turkish Guard-house
PART OF THE BLACK SEA

the coaſt of the Tamanſkoi-Saliv. During the laſt Turkiſh war, in 1787, a ſmall irregular fort conſiſting of two entire baſtions, and ſeveral angles of defence, with narrow ditches, were erected upon an elevated part of the ſhore, within this ſpace; which contained no buildings except the guard-houſe, and that belonging to the Governor. There are only a few good houſes of the old city remaining within the large intrenchment. On the road to Temruk, ſeveral new dwellings are now building by the Kozaks of Tſhernomorſki. An indifferently conſtructed ſtone metſhet, together with its minaret, is at preſent conſecrated to the ſervice of the Greek church. In this place are ſix wells, containing good water, which neceſſary article is rather ſcarce in Taman. As the city is to be ceded to the Kozaks of Tſhernomorſki; and as the inequality of the ground, which preſents numerous deep holes, was unfavourable to the conſtruction of military works, a place was ſelected in 1794, at the diſtance of two verſts from the preſent fort, and more to the eaſt of the bay: it lies upon the level ſurface of a high bank, riſing from forty-ſeven to fifty-eight feet above the ſea, and on the ſide of a ravine on which was erected a new regular fort, conſiſting of three entire and two demi-baſtions contiguous to the ſea, with barracks, and wells dug in the pure yellow clay. In order to complete the plan, a commodious haven is here to be formed for the reception of the flotilla belonging to the Kozaks above mentioned. Between the old and new fortreſſes, the latter of which has retained the name of Phanagoria, there is an intrenchment adjacent to the ſea, that is reputed to have been thrown up, by order of General Suvorof.

Among the ruins of Old Taman, many ſtones with inſcriptions, and pieces of ſculptured marble have been found; and others are probably concealed. Beſide the intrenchment, there is, in a ſouth-weſtern direction, a large baſon of antique workmanſhip, built and paved with ſtone; and, on the ſame ſide, are veſtiges of gardens, in which the vine grows with luxuriance. Many of the inſcriptions were modern Greek and Armenian epitaphs of no importance; and ſome had been brought from other parts of the iſland: the moſt remarkable are repreſented in the ſeventeenth plate, Fig. 2, 3, 4, and 5. On other occaſions, I obſerved, among ſome remains of ancient ſculpture, part of the trunk of a figure armed and dreſſed, apparently executed by a rude hand; ſome cornices; and a curious triangular capital of white marble.

The ſoil in the vicinity of Taman is ſandy; but, on the eminences in the interior, it is combined with loam. This earth lies in ſome places on a level with the ſea. On the ſhore, and in the rain-water trenches, ſtrata of a different kind are viſible on the ſurface. Immediately without the old intrenchment, towards the Youſhnaya-Koſſa, we obſerved a layer of iron-ſtone in a deep hollow near the ſhore, and beneath a bed of vegetable earth, loam, and blue clay, being from two to three arſhines in thickneſs: it contains many beautiful bivalve ſhells, moſtly of a large ſize, and which are filled up, and in a calcined ſtate. Between two ſtrata of ſolid iron-ore, there is a layer of light friable earth, of a greeniſh-brown colour, in which we noticed looſe ſhells with their natural coat; and, though whitened by calcination, they ſtill retain their hardneſs. Some of them are internally cryſtallized, or even filled

filled up, with a beautiful, deep-red, tranſparent, and radiated ſelenite: others contain only a fine, compact, argillaceous iron-ore, or ferruginous gravel. I alſo obtained here a *vertebra*, partly mineralized, and which probably belonged to a ſmall ſpecies of whale. The foſſil ſhells of this neighbourhood are never found in a recent ſtate; and are principally of three ſorts, namely:

1. A ſhort-bellied ſhell, or *Mytulus*, about an inch and three quarters in length, one inch and one-third in breadth, and, when the ſhells are cloſed, not exceeding more than one additional line in the thickeſt part.
2. A ribbed Venus, rounded at one extremity, and indented around the other; being broad-winged towards the hinge, with very thin angles, and ſomewhat elevated ſhells. It is two inches and one-third in length, rather more than one inch and a half broad, and three quarters of an inch thick.
3. A large Venus, ſhaped like the heart of an ox, and ſlightly furrowed; having a raiſed border on each valve reſembling a ſtag's hoof: from the hinge, where the baſis of the ſhell is moſt prominent, towards the point, its length is three inches; its greateſt breadth two and a quarter; and its thickneſs is nearly two inches.

To the eaſt of Taman, the beach alſo furniſhes many petrified ſhells, which likewiſe contain iron-ore, and are covered with a layer of reddiſh-brown and yellow ochre.

The iſle of Taman preſents an irregular ſurface of hills and plains. This has probably been occaſioned both by the ſinking of the ſoil, and by eruptions from the bowels of the earth, as well

well as by the encroachments of the ſea, and the inundations of the river Kuban. Theſe cauſes have produced various changes, and are likely to be attended with many others. The different branches of the Kuban, with ſeveral large bays and inundated low tracts, completely inſulate this country; which, extending weſtward on the Aſiatic ſide, and having the peninſula of the Boſphorus to the Eaſt, forms the ſtreight called Boſphorus, and encloſes the *Mæotis*, or Sea of Azof. The creeks above alluded to, which may be conſidered as irruptions of the ſea into this iſland, are the following, namely:

1. The bay of Taman, or Tamanſkoi-Saliv, appears to be an inlet of the Boſphorus, and is ſaline: it has no communication with the Kuban.
2. The Leeman of Temruk, by the Tartars called Ak-Tengis, or the White Sea; which, like an encloſed lake, is ſeparated from the ſea of Azof only by a narrow bank, and from the bay of Taman by a broader one: it receives from the Kuban ſeveral ſmall ſtreams, that appear to have formerly been navigable; diſembogues itſelf into the ſea of Azof, towards the bay of Temruk; and contains freſh water.
3. The Youſhnoi-Kubanſkoi-Leeman, or the ſouthern bay of the Kuban, is the largeſt, and is ſupplied by the principal channel of that river: its efflux into the Black Sea is through a narrow paſſage between two inconſiderable necks of land, called the Bugas, and which is ſo ſhallow that it may be forded; but towards the Weſt it forms a diſtinct bay, namely,

4. The

4. The Keefiltafhkoi-Leeman; the weftern extremity of which, being feparated only by a tract overgrown with ruſhes, is termed the Tzokuroffkoi-Leeman. As the former creek is divided from that of Kuban only by a ſmall iſthmus, and has no communication with it, but through a narrow cut, the tradition of the Tartars is not improbable, that the Keefiltafhkoi-Leeman was formerly an inland ſalt-lake, until the population of the country increaſed, when the dam, which diſunited it from the bay of Kuban, was interſected; in conſequence of which, the influx of freſh water from that creek has changed its ſaline property.

Beſide theſe bays, the ſalt-marſhes near Kurkee, together with ſome branches of the Kuban, and two more conſiderable arms of this river (lying beyond them and running north towards Atſhuef into the ſea of Azof, and having the Ruſſian names of Tſhernaya Protoka and Kaſatſhei-Yerik) completely inſulate Taman, which anciently had no particular name: it appears, however, to have derived its preſent denomination from the word Tuman, in the Tartar and Ruſſian languages ſignifying miſt; to which it is well entitled, on account of the vapours already mentioned.—All the waters before deſcribed, as well as the whole extent of coaſt, the different bays, and eſpecially the ſea of Azof, are abundantly provided with fiſh.

From Taman, in a ſouth-eaſterly courſe, the whole extent of country towards the Bugas, and between the Black Sea and the Keefiltafhkoi-Leeman, preſents many objects deſerving of notice. The neareſt is a ſmall ſalt lake, ſituated at the commencement of the Youſhnaya-Koſſa, and is by the Tartars called

called Kutuk-Tuſſala. A larger one lies towards the neck of land, which contributes to form the Bugas, or mouth of the Kuban-ſkoi-Leeman. It is oblong in a direction from North to South, being about four verſts in circumference; and, as is generally the caſe with the ſalt-lakes of the Crimea, it is ſeparated from the Black Sea only by a low, narrow ſand-bank. During the ſummer, it is for the moſt part in a dry ſtate; but the ſalt is eaſily diſſolved by occaſional ſhowers, and is of an indifferent quality for domeſtic purpoſes. When the ſea runs high, it overflows the bank, ſo that no ſalt can be depoſited. This lake emits a ſtrong odour reſembling raſpberries or violets; and its ſurface is very ſmooth. The ſalt, like that of the lakes near Kertſh, cryſtallizes in the form of pyramidal cubes. The *Salicornia ſtrobilacea*, and *herbacea*, *Cakile*, *Atriplex portulacoides* and *laciniata*, *Salſola Kali*, and *Meſſerſchmidia*, are very common in the neighbourhood.

The eminence, which encloſes this lake on the land-ſide, is interſected by ſeveral deep hollows: its perpendicular height, towards the Bugas, may be computed at ſeven fathoms; and it contains a marly ſchiſtus, that is apparently burnt, and emits a ſound on percuſſion. In one of ſuch hollows, there is a ſalt-ſpring, the black mire of which yields a ſtrong hepatic ſmell. The *Lepidium craſſifolium* * is abundant in this vicinity. Fragments of ſtone, being in a manner burnt upon their ſurface, are intermixed with the ſchiſtus above mentioned. At a ſhort diſtance from the advanced guard, ſtationed at the Bugas, a ſomewhat deeper trench interſects the height: at its upper commencement, on the ſteep declivity of the weſtern ſide,

* See the firſt volume of theſe Travels; p. 171, note *.

there

there was, at the time of my viſit, a ſmall muddy ſpring, which diſcharged a grey mire reſembling that of the boggy gulfs near Yenikalé; and which had formed a convex hill on the ſide of the trench. Two ſimilar, though dry ſources, were at that time (in the month of June) diſcernible on the oppoſite border. Beyond this place, on a ſmall eminence, the ſurface of which every where preſents deep fiſſures, and alſo various dry ſpots of mire, there are numerous holes or ſhallow pits, that contain a brackiſh water, whence a thick petroleum not unlike tar is collected. The perpendicular elevation of this height, above the level of the Leeman, may amount to ſix or ſeven fathoms. Some other bituminous ſprings are ſaid to exiſt on a hill, which is diſtinguiſhable by the redneſs of its ſoil, towards the Youſhnaya-Koſſa; but I had no opportunity of inſpecting them. Naphtha is alſo produced by many other ſprings occurring in different parts of the iſle of Taman.

The advanced poſt of the Bugas is computed to be about eighteen verſts from Taman. Here is a remarkably narrow, low ſand-bank extending to the South-eaſt, and rather leſs than a verſt in length: its pointed extremity is oppoſite to another ſtill narrower, but ſix times as long; being ſituated on the Turkiſh ſide, and having a correſponding one within the Leeman, that terminates near a ſmall iſland towards the Ruſſian coaſt. Between theſe necks of land, on the two points of which both the Ruſſians and Turks have a military poſt, the ſhallow paſſage is ſcarcely one hundred fathoms broad; and through this oultet the Kubanſkoi-Leeman diſembogues itſelf into the ſea. On the capture of Anape, the auxiliary cavalry of the Crimea forded from one point to the other.

During my viſit, the Turks were employed in erecting a ſtone fort, near the village of Dſhemetri, lying on the ſteep eminence at the commencement of the iſthmus; on which account a veſſel was there ſtationed: to oppoſe this fort, it is intended to conſtruct a ſimilar fortification on the Ruſſian ſide; and, with a view to maintain the communication, a redoubt is built on the road leading to the piquet, at a diſtance ſomewhat exceeding one verſt from Taman.—Cloſe to the ſea-ſhore, and within ſight, is the Turkiſh fortreſs of Anape.

On proceeding ſix verſts beyond the picquet, towards the Keeſiltaſh-Burun, a hilly point of land between the Keeſiltaſhkoi and Kubanſkoi Leemans, we ſaw on the left one of the moſt conſiderable hillocks, near which are diſcernible the traces and ruins of an ancient city, probably the Phanagoria of Strabo, which he places in the vicinity of Kubanſkoi-Leeman, formerly called the Korokondametis. Other travellers have ſearched here for the city of Korokondama; but, according to the preciſe and clear expreſſions of Strabo, it was oppoſite to Pantikapæum, only ten ſtadia, or two verſts, from the Bugas; where indubitable veſtiges of it may ſtill be diſcovered.—Immediately below the ſurface of this height, are beds of reddiſh calcareous ſtone, entirely compoſed of ſhells, from the colour of which the Tartars have named it Keeſiltaſh-Burun, or the point of the red rock.

The middle tract of the iſle of Taman, ſituated between the Kubanſkoi and Temrukſkoi-Leemans, is the higheſt and moſt hilly part of the whole country; being alſo the moſt fertile

fertile in vegetable productions. In the centre, exactly between this Leeman and the river Kuban, the Kozaks of Nekraſov (who originated from the rebels of the Don, deſerted to the Turks, and ſtill continue under their dominion) formerly inhabited ſeveral neat villages; till, on the ſeizure of Taman, they were compelled to retire farther to the ſouth of Anape. Their villages were built on ſeveral heights along the Kuban; being ſurounded by the moſt fruitful meadows and fields; and poſſeſſing a delightful proſpect over the banks of the Kuban, as far as the villages and woods of Mount Caucaſus. Various antiquities and inſcriptions are ſaid to have been found in the neighbourhood. Fragments of ſelenite of different ſizes are mixed with the clay in theſe hills; and, in the part formerly inhabited by the Kozaks laſt mentioned, there are likewiſe bituminous ſprings, from which a remarkably pure and fluid petroleum is obtained. The Kozaks uſually immerſe barrels with perforated bottoms in theſe ſources, for the purpoſe of collecting ſuch oil in a purer ſtate. There are, doubtleſs, many other ſtriking objects in this part of the iſland; but want of time, and the inſecurity of the country, prevented me from making farther excurſions.

I have, with more than uſual attention, examined the parts bordering on the Tamanſkoi Saliv, as well as thoſe lying between it and the Temrukſkoi Leeman*; and alſo the northern angle of the iſland, ſituated towards the Severnaya Koſſa.

* The Kozaks of Tſhernomorſki call Temrukſkoi by the name of Aſtomiſkoi Leeman, which is probably derived from the Tartar *Ak-tongis*.

The firſt object, deſerving notice in this diſtrict, on quitting the city of Taman, is a ſmall building, erected by order of the late Empreſs, among the ſand-hills to the ſouth of the town, near a well, for the preſervation of a remarkable ſlab of marble with an ancient Ruſſian inſcription. This ſtone, for the diſcovery of which we are indebted to Major von Roſenberg, was found at the barracks of a battalion of chaſſeurs ſtationed at Taman, where it had been employed as one of the ſteps leading to the door. Vice-Admiral Puſtoſhkin, who was diſpatched thither with the ſquadron under his command, removed it to Nikolaef; whence it was re-conveyed by an Imperial order to the place where it was diſcovered; and is preſerved as an hiſtorical monument in the houſe above mentioned. The ſlab conſiſts of white marble; is between ſeven and eight feet in length; is poliſhed on the lower ſide and edges, but rough on the upper ſurface, having a hole for admitting an iron cramp; and appears to have been placed above a door or gateway. On the edge of the ſlab, there is an inſcription, which is the more remarkable, as it inconteſtibly proves, that Taman is the ancient Tmutarakan, where a family of portioned Ruſſian princes formerly reſided. Many doubts have prevailed on this ſubject; but they have been removed by Mr. E. R. Stritter, who has compared the Byzantine authors with the Ruſſian annals. The purport of the inſcription is as follows: "In the year 6576 (1065) Indict. 6. Prince Gleb meaſured the ſea on the ice; and the diſtance from Tmutarakan to Kertſh was 30,054 fathoms." The occaſion of this inſcription is by no means evident; as the freezing of the Boſphorus, ſo that it may be meaſured on the ice, is in itſelf

Gruster del.

Medland sc.

itſelf no uncommon occurrence. Privy Counſellor Alexei Muſſin-Puſhkin has written an eſſay *, containing hiſtorical elucidations of this inſcription, and of the principality of Tmutarakan, accompanied by a map explanatory of the geography of ancient Ruſſia, and by a fac-ſimile of the inſcription, which is the ſubject of our tenth Vignette. An incorrectneſs in delineating the figures, that occurred in the ninth Vignette, has induced me to give a new repreſentation of an hiſtorical document, which appeared to me of ſome importance.

Soon after quitting the ancient city of Taman, by the road leading along the bay to Temruk, on the right, and oppoſite to the new fort, we obſerved a chain of eminences, or hillocks, which, at the diſtance of a verſt and a half from the fort, and from the ſhore of the bay, riſes to one hundred and ſixty, or one hundred and ſeventy, feet in height. The fourth of theſe, called Kirk-Kol, is the moſt conſiderable, and at the ſame time the moſt remarkable, on account of the operations of nature viſible on its ſummit. The upper part is wholly covered, apparently by an eruption, with a yellowiſh-grey unproductive loam, mixed with diverſified fragments of ſtone. On aſcending the moſt elevated ſurface, a ſtrong odour of petroleum is perceptible from the firſt and moſt northern of the three muddy hillocks, which are depoſited on the eminence. The firſt of theſe elevations is flat and broad, not exceeding a fathom and a half in height, but is upwards of one hundred paces in diameter: it is thinly overgrown with the *Camphoroſma*, which, as well as the *Lepidium Craſſifo-*

* *Iſtoritſcheſkoi Iſſlejedowanie o Meſtopoloſchenie drebnago roſſiiſkago Tmutarakanſkago Knäſchenie, iſdano po Wyſotſchaichemu Eja Imperatowſkago Welitſcheſtwa Powjeleniju wo Sankt Piterburge.* 1794. 4to.

lium

lium already mentioned, is generally the firſt vegetable thriving on muddy eruptions. This hillock is accumulated in three ſections, one above another, that probably derive their origin from volcanic diſcharges. In its centre, we noticed two or three places with evident veſtiges of muddy craters, but which are now filled up, and in a dry ſtate. The eminence is ſurrounded by a circular dale, which is deepeſt on the ſouth ſide, where it contains a ſtagnant pool in the form of a creſcent, having no outlet; and the water of which is of a ſaline and urinous taſte: its bank is covered with reeds, and its bottom is muddy; it never dries up in the ſummer. The ſecond hillock, ſcarcely fifty paces from the dale that ſurrounds the firſt, is ſomewhat higher and leſs extended, having only two diſtinct terraces: on one ſide, the manner in which the mud is diſgorged and inſpiſſated around its ſurface is very evident, together with the ſpots indicating former eruptions. A deep circular hollow alſo ſurrounds this hillock, and preſents a broad ſemi-lunar pond on the north ſide, with muddy banks and very turbid water, of a leſs urinous but more ſaline taſte: in the middle of this lake is a clearer ſpot, perceptible at a diſtance, and which is probably the effect of a greater depth of water. Laſtly, the third hillock, being leſs than one hundred paces from thoſe before mentioned, and to the ſouth of the firſt, is the ſteepeſt and higheſt, reſembling the ſhape of a Kurgan*. It is about two fathoms and a half in height, and is chiefly compoſed of mud, interſperſed with a great variety of ſmall ſtones. The narrow trench, naturally formed around

* The Ruſſians give the appellation of *Kurgani* to the elevated ſepulchral barrows of the ancient Tartars.

it,

it, is encompaſſed with looſe rubble. On deſcending from theſe eminences in a ſoutherly direction, the road paſſes down a curved ridge, having the low country of the Keeſiltaſhkoi-Leeman on the one ſide, and on the other a deep hollow, which proceeds from the hill in a ſerpentine direction, till it reaches the ſhore. Somewhat more than half way up this ridge, on the right towards the beach, there is a mud-pit, in which we remarked two ſoft places: one of theſe is nearer to the declivity, throws up bubbles, and diſcharges the mud through a paſſage in its margin. The crater, which throws up the bubbles, is an arſhine and a half, and the whole pit is about two fathoms, in diameter. The mud is thin, aſh-coloured, impregnated with ſalt, and has a bituminous taſte.—On the oppoſite ſide of the ridge, there is another pit of leſs extent, and in a dry ſtate. At the diſtance of ſcarcely one hundred paces downwards, we met with a hillock, immediately behind which is a larger and more remarkable mud-pit, only two fathoms from the edge of the ſteep paſſage: its diameter is ten fathoms; its depreſſed border is very dry, and covered with a thin ſaline efflorescence. The central ſurface, reſembling an inverted baſon, is about five fathoms in diameter, and conſiſts of a viſcous mire, that is encruſted round the edge; and, when touched with the handle of a lance, fluctuates like a half-filled bladder. Bubbles of mud, as large as the crown of a hat, riſe every ten or twenty ſeconds from the ſoft centre, and burſt with a loud report. The mud did not overflow at the time of my viſit; but, in the oblique deep gutter formed towards the adjacent valley, it was evident that, in the preceding ſpring, an efflux had

had taken place to the depth of a foot: the whole trench, which at length interſects the ridge, has a ſtrong ſaline incruſtation.—In the deep hollow appears a marly ſchiſtus, breaking in plates, and nearly reſembling that of Pappenheim, with impreſſions of fragments of ſea-weeds. From this muddy ſource probably aroſe the great volcanic eruption in the year 1782, which was accompanied with a loud exploſion; and which is ſtill remembered by the inhabitants of Taman and Yenikalé. I was much ſurprized at finding a neſt of young horned owls, not perfectly fledged, in this hollow, which is totally deſtitute of wood; as theſe birds generally frequent the thickeſt foreſts and lofty rocks.

Lower down, in an oblique North-eaſtern direction towards the bay of Taman, on a graſſy plain, there are two deep wells of ſoft water, lined with maſonry-work. Beyond theſe, the Temruk road croſſes a deep rain-water trench, over a good ſtone bridge. After paſſing ſeveral ſmall connected eminences, near one of which a ſalt-ſpring iſſues from a hollow, we noticed, on the right, a hill ſimilar to that already deſcribed, and in the middle of which are likewiſe three protuberances: the diſtance from each other is equal to about one third-part of the baſe; and they conſiſt of a blackiſh tenacious clay. Being thickly covered with vegetables, it is probable that they were occaſioned by more ancient eruptions. This hill, which has received the name of Aſſodagh, terminates the ſmall chain of hillocks; and, between the Tamanſkoi and Kubanſkoi Leemans, there occur only ſome inconſiderable elevations, proceeding towards the South-eaſt.

Along

Along the Tamanſkoi-Saliv, the country becomes ſandy, and exhibits, particularly in one place, a fine white ſand. Immediately after, a number of barrows, compoſed of fragments of ſand mixed with marl, and combined with clay, occupy an extenſive ſpot between the ſea and the road; ſome of them lying near the ſea-ſhore. At a ſhort diſtance, the veſtiges of a Tartar village and cemetery are obſervable near the ſea, where probably was the ſite of the village of Shemardak; and, after travelling a few verſts along the coaſt, we met with fifty or ſixty barrows of different ſizes, formed of heaps of ſand united with clay; being partly placed in rows with an intervening ditch, and partly iſolated on the elevated plain. Two of theſe are particularly large, and very remarkable; lying rather more than one hundred paces from each other. The falling of a ſtone, having opened and uncovered the barrow ſituated to the Weſt, led to the diſcovery of a vault, under which the regular eaſtern entrance has ſince been made acceſſible. This vault is an oblong ſquare, and uncommonly well built; being provided with an anti-chamber on the ſame ſide. The length of the principal vault is fourteen feet nine inches, Paris meaſure; the breadth is nine feet three inches; and, in its centre (which is ſlightly elliptical), it is eight feet nine inches and four-fifths in height. The breadth of the aperture is five feet three inches towards the anti-chamber, which is eight feet eleven inches broad, and ſix feet and a half deep: the height of the round cieling is only eight feet five inches; the entrance is five feet two inches wide, and was cloſed with two flat ſtones. The lower erect foundation-wall of the vault is two feet thick, and four feet

four inches and a half high, to the cieling; which, as well as its floor, is conſtructed with brick-clay: the counter-force is three inches and a half. The ſquares, of which the whole is formed, are white chalk-ſtones, containing ſmall tranſparent ſnail-ſhells reſembling oolites: theſe ſtones are very accurately joined, and cemented with a fine mortar, with which they are likewiſe thinly coated; being rather more than two feet in breadth, by two feet five inches long. The thickneſs of the vault ſcarcely exceeds ten inches; but the incumbent earth is ſeventeen feet in depth.—I could not obtain any ſatisfactory information concerning the articles found in this elegant vault; or by whom, and when, it was opened. According to ſome traditions, the marble ſarcophagus, placed beneath the fountain at Yenikalé, is ſaid to have been depoſited here; but at preſent no monument could be diſcovered.

Near this ſepulchral vault, many fragments of bellied urns are found in ſome of the barrows that have been dug up, and in others which have been undermined and partly broken by the ſea: they are upwards of one-third of an inch in thickneſs, of rude workmanſhip, and unglazed. The ſeries of urns appears to have been depoſited on the ſurface of the ground, and covered up with accumulated earth. In a large hill near the ſtrand, I diſtinctly perceived two rows of ſuch urns, placed above each other, with an intervening layer of ſoft ſea-graſs wrack (*Zoſtera marina*) well preſerved, but perfectly blanched in the ground; the whole forming a curved waving ſtratum. I have not met with any perfect urns: thoſe, the fragments of which remained in their original poſition, were filled with a mixture of earth and charcoal. Such of the urns

urns as exceeded twenty-eight inches in their greateſt diameter, were frequently of inferior height, and had a narrow neck; on which account they appear not to have been deſtined for the reception of aſhes or bones, but probably contained wine or ſome other liquor, and were depoſited together with the aſhes of the deceaſed. Similar urns, but of more elegant ſhape, and partly glazed or painted, have been found in the barrows of the Boſphoric peninſula.—In the tenth vignette, at *A.*, I have given a figure of a handſome urn, or *amphora*, of a very peculiar form, alſo found in that peninſula; and at *B.* and *C.* are figures repreſenting thoſe of Taman, which are of the common conſtruction. The *amphora*, fig. *A.*, beſide its ſingular ſhape, is remarkable, becauſe it has no foot (which is likewiſe very ſmall in all the others), but terminates in a point; and as it exhibits the following words diſtinctly impreſſed upon its neck, in two lines.

ΕΠΙΚΑΛΛΙΑ
ΕΟΠΑΜΟΝΟΣ

In the ſame vignette, fig. 2., in the centre, there is a ſection of the tomb, ſimilar to thoſe found in the Crimean Cherſoneſus: it was diſcovered by the workmen employed at the fortreſs of Ovidiopol, on the banks of the Leeman, or bay of the Dnieſtr, called by the Moldavians *Lacul Ovidului* *. I am indebted to the General of Engineers, de Wollant, for the delineation and

* Some perſons have attempted to derive the name of this bay from Ovid the poet; but, in the Moldavian language, *Lacul Ovidului* ſignifies the Lake of Sheep: it aroſe from the cuſtom of waſhing and watering ſheep in this place. Ovid, probably, was never on this ſide of the mouths of the Danube.

ſhort deſcription of this figure: I ſhall here inſert his own words, which will alike elucidate the tomb and mode of ſepulture, practiſed by the ancient Greeks in theſe regions. A head, modelled in reddiſh clay, in good preſervation, is repreſented of its natural ſize in the eleventh vignette, Fig. 1 and 2. It was found among the bones in this tomb, and is at preſent depoſited in the Cabinet of Antiquities of the Hermitage at St. Peterſburg.

"It appears to me," ſays M. de WOLLANT, "that the ſmall antique buſt, diſcovered on the bank of the Leeman of the Dnieſtr, called Lacul Ovidului, deſerves your attention; and I am concerned, that buſineſs of importance has hitherto prevented me from communicating to you the accidental manner in which I obtained a ſpecimen of ſingular beauty, and deſerving the notice of connoiſſeurs. This buſt repreſents the head of a very handſome woman; is about three inches high, being made of baked clay; and is of exquiſite workmanſhip. The profile is Greek, and the head-dreſs that of a Diana: the hair is divided on the forehead into two knots, forming together a ſort of creſcent. It is an object worthy of attention, and was found in one of the tombs, which we frequently met with, while erecting the fortifications on the bank of the Leeman above mentioned. The conſtruction of theſe tombs is alike extraordinary and intereſting: five ſtones of ſpathoſe ſchiſtus form a ſort of caſe, which contains the human bones, charcoal, and generally a ſort of broken lamp, together with a large pitcher, manufactured of the ſame material as the buſt. I encloſe an outline of this tomb, as well as of two large pitchers, which were depoſited in the manner I have endea-

endeavoured to delineate in the ſketch. I am inclined to believe, that the buſt exhibits one of the domeſtic deities, buried with the remains of the deceaſed; who, from the ſize of the tomb and other circumſtances (ſuch as two pitchers inſtead of one, which the other barrows contain), appears to have been a perſon of diſtinction. Some have conjectured this buſt to be that of Julia; diſcovering in it a perfect reſemblance to ſome gems and medals, which repreſent that illuſtrious Roman lady. They are the more anxious to eſtabliſh ſuch ſuppoſition, as the lake, where this tomb is ſituated, is by the natives of the country called by a name ſimilar to that of Ovid."—In Vign. 10., the letters *a. a.* point out the *amphoræ*, as they were found leaning againſt the tomb; *b.* is the clay lamp attached to it; *c.* the heap of aſhes and bones within the tomb, which was excavated ten feet deep under ground, in a caſement formed of flags; and, laſtly, *d.* denotes the flat ſtones, with which the tomb was conſtructed; being about two feet and a half ſquare, by four inches in thickneſs.

From the remarkable barrows above deſcribed, we travelled about a verſt to the South, to ſome productive ſprings of rock-oil; croſſing an extenſive height, whence we could ſurvey the Tamanſkoi and the Temrukſkoi-Leemans, which are ſeparated by this eminence. Beyond the hill lies a broad glen, formed by the rain: it is in ſeveral places totally deſtitute of verdure, and runs in a crooked direction towards the ſhore of the Temrukſkoi-Leeman. In this valley, which receives two adjacent ſhort dells from the Weſt, a brown petroleum exudes from an upper ſtratum of bituminous earth, incumbent on a bed of grey ſoft clay. In one of theſe dells are two, and in the other

(which

(which has an oval bottom with a quagmire in its centre, and is twenty-eight paces long) are twenty pits, many of which are filled with ſalt-water; but ſome of them are dry, and contain only rock-oil. In all theſe pits, a brown petroleum collects on the ſurface; the bituminous earthy ſtratum is probably concealed beneath that part of the large valley where the barren ſpots occur. An extenſive plain, abounding with graſs and herbs, ſurrounds the Temrukſkoi or Aftoneeyſkoi-Leeman: it formerly contained ſome Tartar villages, and is at preſent occupied by ſeveral farms belonging to the Kozaks. In its upper part, which is ſeparated by an extenſive bank of reeds, the water is ſweet and potable; but, lower down towards Temruk, it is fetid and brackiſh. This Leeman produces great numbers of carp, various ſpecies of pike, and other ſcaly fiſh, as well as crabs of a bitteriſh taſte.

On advancing farther on the Temruk road, we ſaw Mount Shumukai, lying directly oppoſite to the eaſt end of the bay of Taman. On the upper part of this hill, are ſome ſpots covered with reeds, and a few eminences reſembling barrows: the whole is interſected by different hollows, and extends ſome verſts towards the Eaſt, with a broad ridge. On the wide baſe of this mountain, about twenty verſts from Taman, there is a conical hill, viſible at a diſtance; and which, from its appearance, has probably been produced by a ſubterraneous eruption. It is called by the Tartars, Kül-obo or Kül-tepé, ſignifying the Hill of Aſhes. When viewed on the beach from the Weſt, it is not unlike a ſmall volcano, the upper cone of which is of a light-grey ſhade, being deſtitute of verdure, and probably of modern origin. It ſeems of leſs magnitude

nitude on beholding it from the foot of Mount Shumukai; and the regular form of its cone is leſs evident, on account of a protuberance on its eaſtern declivity. The extent of this mountain at its baſe, on the wide ridge of Shumukai, may amount to about three hundred fathoms. The eaſtern prominence is about one hundred paces from its pointed ſummit; and the latter is exactly thirty fathoms in circumference, and not quite two fathoms in perpendicular height: the whole eminence may be about ten fathoms above the beach, and fifteen above the level of the Leeman. On the top of the grey upper cone (below which the hill becomes uniformly level on all ſides) there was in June a ſmall ſpring of ſoft mud, about three feet ſix inches in diameter, and which occaſionally threw up bubbles: by inſerting a pike, I found that it was very ſoft to the depth of a fathom, but at a greater depth it became more viſcous; and, from the opening downwards, it perceptibly increaſed in circumference. The mud is of a perfect aſh-grey colour: when freſh, it diſplays a blue caſt; is of an uniform conſiſtence; and, what is very remarkable, it is mixed with ſome roots of ſedge and bulruſhes, which are alſo occaſionally found in the dry porous * maſs. This phenomenon confirms the conjecture, that ſuch mud-ſpring communicates with the Temrukſkoi-Leeman, which is in many places covered with ſedge. On the whole, I am convinced, that the burſting of the ſea into the kindled interſtices of deep inflammable ſtrata, by effecting the developement of various

* The peculiar ſtate of this ſettled mud, and the large and ſmall bubbles, ariſing from the fermentation in vitriolated layers of clay, are ſufficient evidence that we ought not to conſider every amygdalite or porous foſſil, as being of a volcanic nature.

elaſtic

elaſtic vapours, is the principal cauſe of theſe muddy eruptions. In addition to a few fragments of whitiſh marly ſchiſtus, that often appear to have been calcined, there are many pieces of ancient urns, or *amphoræ*, ſcattered about the upper cone, which render it probable, either that there was formerly upon the old mountain, prior to the eruption, a barrow containing urns; or that, in a more ancient eruption, the pagan inhabitants had filled ſome of theſe veſſels, and placed them as a conciliatory offering to the ſubterraneous deities; or had thrown them into the pit; and that they had been again caſt out and broken by a later volcanic diſcharge. Recent traces of ſmall mud-ſtreams, though in a dry ſtate, were ſtill viſible, and ſeem to have flowed in the ſpring of the year 1794, when I ſaw this hill: for the mud-pits in its vicinity are generally in a fluid ſtate throughout the wet ſeaſon of the year. It is confidently aſſerted that, during a ſtorm, when the ſea and the neighbouring Leeman are much agitated, a conſiderable noiſe and ebullition proceed from the Kül-obo. The mud is, nevertheleſs, perfectly cold, and has a ſaline taſte; but, when dry, it is not uniformly effloreſcent with ſalt. On thoſe parts of the hill, which are covered with mire, no other vegetable thrives except the *Camphoroſma;* and, lower down, we noticed the *Statice ſcoparia*, a ſufficient evidence of the ſaline quality of this mud. A perſon who accompanied me on the excurſion, obſerved that, about four years ſince, a thin watery mire iſſued, in a manner boiling, from this pit, which was then ſurrounded with a ſharp border: according to his account, the fluid was warm, and ſtrongly impregnated with ſalt.—On the ſide of the eminence, towards the South, there

is

is an evident opening for the mire; though, in the ſummer, it is completely dried up. The warmth, felt in the fiſſures of the dry mud, appears at firſt to be unnatural; but, on plunging the hand deeper into the cracks, the heat perceptibly decreaſes, and muſt therefore be attributed to the action of the ſun on the ſurface. The minerals found diſperſed on the top of the Kül-obo, and which have been thrown up with the mud, are as follow:

1. Grey and brown clayey iron ore, of a ſomewhat teſtaceous fracture; and which ſlightly effervеſces with acids.
2. A fine-grained, very ſolid, grey ſand-ſtone, glittering like quartz; it gives fire with ſteel, and does not effervеſce.
3. A grey, ſoft, ſandy ſlate, ſomewhat calcareous, and partly ſoluble in water.
4. A whitiſh-grey clayey ſchiſtus, breaking not unlike ſhells.
5. A marly ſchiſtus in thick layers, of a whitiſh-grey colour, and ſtrongly effervеſcent.
6. A light and yellowiſh brown clayey ſchiſtus, in thin laminæ, and not effervеſcing with acids.
7. Fragments of ſelenite.

From the foot of the Kül-tepé, concerning the eruption of which there is no tradition, the road to Temruk deſcends into a broad level country, interſperſed with ſedge-grounds and ſmall lakes: it occupies the whole tract of land as far as that town; is in ſome places leſs than a verſt and a half in breadth; and ſeparates the Leeman of Temruk from the Sea of Azof. In the very plain of this low valley, near the Leeman, along the ſhore of which I returned, I found a dry crater of mud, or *Putſhina*, as it is uſually called by the Ruſſians in-

habiting theſe regions. In the ſame level, there are a few eminences, with ſepulchral barrows; and, on one of ſuch elevations near the poſt-road, there appears to have been an ancient redoubt, of which I could obtain no information. It conſiſts of a broad wall, forming a ſquare, with bonnets or erections at the corners, and a ſaliant angle at the weſtern curtain. On the ſouth ſide, near the eaſtern bonnet, is a wide paſſage: in the ditch, at the ſouth-weſtern corner, is a well of brackiſh water, of an hepatic taſte; and, in the intrenchment, are ſome excavations, which appear to have ſerved as ſubterraneous huts. Immediately beyond the poſt-houſe here eſtabliſhed, we arrived at the *Pereſſip*, a ſand-hill, which, at its commencement, is more than a fathom and a half high: it reſembles in form an oblong ſquare rampart, being flat on its upper ſurface, and occupying the narroweſt part of the iſthmus between the Sea of Azof and the Temruſkoi-Leeman, which is thus naturally defended. This ſand-ridge, the border of which towards the ſhore is conſolidated with ſea-reeds, declines in the centre, and again riſes towards Old Temruk, lying at the diſtance of ſix verſts from the new city of that name: the former was ſituated on a hill, ſurrounded with water; was fortified by ramparts; and, according to tradition, was erected by the inhabitants of the iſland, with the view of reſtraining the Don Kozaks; who were accuſtomed to pay predatory viſits, advancing in boats to the mouth of the Leeman.

The ſea-winds having ſwollen the mouths of the Temruk-ſkoi-Leeman, and this place containing few remarkable objects, I was induced to return, in order to examine the mud-hill in the north-weſtern angle of the iſland, which has lately excited much

much attention, in conſequence of an eruption; and thence to proceed to Yenikalé, by croſſing the Severnaya-Koſſa. According to the information I obtained, the modern Temruk, which is probably the *Pagus Cimbricus* of Strabo, is a wretched place, ſituated on a ſmall elevation, ſurrounded by marſhes overgrown with ruſhes: its diſtance from Taman was computed to be about ſixty verſts. A few verſts farther, lies a fort built of rough ſtone, which is likewiſe encompaſſed by fens, and was formerly kept in repair by the Turks, but is at preſent abandoned: we paſſed it on the road to Kurkee, and it is alſo bounded by theſe extenſive marſhes, which ſpread along the river Kuban in a northern direction, along both mouths of the latter, called Tſhernaya Protoka and Kaſatſhei Yerik, as well as along the Sea of Azof to the environs of Atſhuef.

Pag. 11

1 2

In the vicinity of Old Temruk, a remarkable phenomenon happened in 1799. As this event may ſerve to elucidate not only the theory of the muddy eruptions, often alluded to in the preceding ſection, but likewiſe that of volcanos, it here deſerves particular notice. According to the moſt authentic accounts, confirmed by witneſſes, who were preſent on the occaſion, it was about ſun-riſe on the 5th of September, in the year above mentioned, when a ſubterraneous noiſe, and ſoon after a dreadful thundering, were perceived in the Sea of Azof, oppoſite to Old Temruk, about one hundred and fifty fathoms from the ſhore. This inteſtine convulſion was ſpeedily followed by a report, not unlike that of a cannon; while the aſtoniſhed

aſtoniſhed ſpectators, who had attentively watched the terrific ſcene, obſerved an iſland of the form of a large barrow, riſing from a cavity of the ſea, about five or ſix fathoms deep, and proceeding above the ſurface of the water; ſo that it occupied a ſpace of about one hundred fathoms in circumference. At firſt, it appeared to ſwell and ſeparate by fiſſures, throwing up mire with ſtones, till an eruption of fire and ſmoke occupied the ſpot. The ſea was in thoſe days ſo tempeſtuous, that no perſon would venture to approach the new iſland in a boat; though it was elevated two fathoms above the waves; being of a black colour from the dark mud of which it was formed.—On the ſame day, about ſeven o'clock in the evening, two violent ſhocks of an earthquake, after a ſhort interval, were perceived at Ekaterinodar, which is two hundred verſts diſtant from Temruk.—Various occupations, and febrile attacks, prevented me from undertaking, at that time, a journey to Taman, in order to examine this extraordinary phenomenon; and in the following year I underſtood, with regret, that the newly-ariſen iſland was either waſhed away by the force of the waves, or had ſpontaneouſly ſunk, ſo that it was no longer viſible. By the ſame account I was informed, that its length extended to ſeventy-two fathoms, its breadth to forty-eight; and that it had ſettled at an elevation of ſeven feet above the ſurface of the ſea.

On

On the 16th of June 1794, I continued my journey towards the Severnaya-Koſſa, in order to viſit the newly-formed muddy volcano; and afterwards to return, by croſſing the Boſphorus.

The road from the ſepulchral hillocks, before deſcribed, winds around the eaſtern bay of the Tamanſkoi-Saliv, over a ſandy plain diverſified partly with barrows, and partly with ſteep ſand-banks, drifted together by the wind, and called *Kutſhugury*. At the angle of the innermoſt bay, we paſſed a ſingular ancient rampart, the foundation of which exceeds ten fathoms in breadth: it extends in a ſtraight line from Eaſt to Weſt, over the level country, at the diſtance of nearly one verſt from the ſea;

ſea; having three diſtinct paſſages, and each of theſe exhibiting a kind of bonnets; till, at length, it terminates in a hillock on the plain, without reaching any of the eminences in its vicinity. On the ſouth-ſide of the mound is a broad ſhallow ditch, containing a ſaline humidity; and, on the oppoſite ſide, are ſome excavations, from which the ſoil appears to have been taken, for the purpoſe of raiſing the rampart.

After having paſſed this ridge, or line, we gradually approached ſome elevated flats, abounding with luxuriant herbs; here a farm has been erected, on the ruins of the village of Tſhokrak-Koi, having a ſpring of good freſh water that runs northwards through a clayey channel. A little farther, on the high plain, are ſeveral tombs ſurrounded with large ſlabs of a calcareous ſandy ſchiſtus: they are irregularly ſcattered, ſometimes extending Eaſt and Weſt, and ſometimes North and South: they are not of Tartar, but probably of Circaſſian origin. Two ſlender pillars, or tomb-ſtones, upwards of a fathom in height, are conſpicuous among them. On the whole, we obſerved here a perfect reſemblance to the graves near Tokluk, already deſcribed.

About eighteen verſts from the great ſepulchral vault, on the ſite of another village in a ſtate of ruins, we arrived at the farm of M. Stankevitſh, Lieutenant of Kozaks, being only ſix verſts from the volcanic muddy eruption, diſcharged on the broad iſthmus oppoſite to the city of Taman; and which is ſo diſtinctly ſeen from every ſide, that I am inclined to conſider it as the *Monumentum Satyri*, or ſepulchre mentioned by Strabo.

The Tartars call this mound *Kuuk-Obo*, or the Blue Hillock; and the Kozaks of Tſhernomorſki (who, ſince the eruption of

fire

fire and mud, imagine it to be one of the infernal chimnies) diſtinguiſh it by the name of Prekla*. It lies in the middle of the broad angular iſthmus, which partly forms the inner bay of Taman, nearly North-eaſt from the city, and almoſt in a line with Yenikalé to the South-ſouth-eaſt. Its figure (as appears from the profile taken from Yenikalé, and given at the foot of the twelfth vignette) reſembles a large heap of corn, gradually ſloping northward; its perpendicular height above the level of the ſea being about thirty-eight fathoms. The circumference of this eminence, at its baſe, is three verſts and three hundred fathoms; its diſtance from the bay of Taman is nearly two verſts and one hundred and eighty fathoms; but from Yenikalé, in a ſtraight line, about fourteen verſts. According to the report of a ſhepherd, who had often viſited it prior to the eruption, there was in the centre of its ſummit a pit upwards of ſeven feet wide, and twenty-eight inches deep; in which, during the wet ſeaſon, potable water was collected to the depth of nine inches: the whole upper part was covered with tall graſs interſperſed with a few ruſhes; and, as their vegetation was not checked by the mud overflowing the ſurface, it is evident that this mire was not in a hot ſtate, when diſcharged from the interior of the mountain. The pit, here deſcribed, and the argillaceous ſoil mingled with fragments of ſtone, which compoſe the ancient ſuperſtratum of the hill, render it probable, that ſimilar eruptions have taken place in very remote ages, and thus contributed to its preſent ſize.

In the year 1794, during my firſt viſit in the Crimea, a remarkable phenomenon happened on this hill; and as it tends

* This is the term uſed to expreſs Hell, among the inhabitants of Little Ruſſia.

to

to elucidate the nature of the numerous muddy volcanoes* of different ſizes, whether ancient or modern, I ſhall here inſert a circumſtantial account of its effects.

In March of the ſame year, Lieutenant CONSTANTINE LINTWAREF, Inſpector of Quarantine at Taman, officially reported that, on the 27th of February, at half paſt eight o'clock in the morning, the following extraordinary events took place at the hill ſituated on the northern iſthmus; which, acroſs the bay, is only twelve verſts diſtant from Taman, but ſixty verſts by the circuitous road over land. Firſt, a ruſtling in the air was perceived, with a very violent guſt of wind, that did not continue above a minute; and then a noiſe, reſembling thunder, was heard from the hill: ſoon after, a column of thick black ſmoke burſt forth from its ſummit, and was ſucceeded in about a minute by another of violent flame, which at that diſtance appeared to be at leaſt fifty fathoms high, and thirty in circumference. This flame continued from a little after half paſt eight till within ten minutes of ten o'clock. An expreſs was diſpatched, as ſoon as the flame, the

* Obſervations on ſimilar eruptions of mud near Baku, may be found in a German work entitled "*Sammlungen Ruſſiſcher Geſchichte,*" vol. vii. pp. 337 and 338; by the late meritorious M. MÜLLER, Counſellor of State; and in the Deſcription of SOIMONOF; as well as in KAEMPFER's "*Amœnitates Exoticæ,*" p. 283. Here, and probably beneath Taman, lies an extinct carbonaceous ſchiſtus, which, together with the ſinking of the incumbent ſtrata, produces thoſe effects. I am farther ſupported in this conjecture by the circumſtance, that in the vicinity of Baku, walls and towers are found buried in the lake, at the depth of three fathoms, or three fathoms and a half (MÜLLER, *loc. cit.* p. 414); while the inflammable vapours and ſprings of petroleum over the whole peninſula of Baku inconteſtably prove, that there are beds of coal ſtill burning under ground.—The muddy volcano of Makuba, in Sicily, of which different travellers have given an account, is of a ſimilar deſcription.

vapour, and the noiſe had apparently ſubſided; but he returned with an account, that the hill had been rent, and preſented an opening, the extent of which could not be aſcertained; as every acceſs to it was rendered impoſſible, by the ſudden and ſucceſſive ſtreams of hot mud that overflowed it in every direction, and were ſometimes accompanied with flames and ſmoke. The eruption, however, was not attended with any ſhocks of an earthquake.

According to the collected teſtimonies of perſons, who witneſſed the awful ſcene from Taman and Yenikalé, and who viſited the mountain immediately after the eruption, it commenced with a noiſe reſembling a peal of thunder, both in its ſtrength and duration. Prior to and for ſome time after the report, the inhabitants perceived a whiſtling and ruſtling in the air. A white vapour aſcended during the exploſion, and was ſucceeded by a black ſooty ſmoke, through which appeared a column of red and pale-yellow flame, riſing in a perpendicular line to double the height of the mountain, and ſpreading on the top not unlike a ſheaf of corn; though a conſiderable wind agitated the atmoſphere. The column of fire was viſible for about twenty-five minutes, when it gradually vaniſhed, but the ſmoke continued from four to five hours; diſperſing itſelf in thick heavy clouds on both ſides, which alſo ſubſided on the following day. During the firſt exploſion, the hill threw up quantities of mud into the air, and ſcattered it about in every direction to the diſtance of a verſt. The great maſs of mud proceeded from the gulf, or crater, by raiſing and removing the argillaceous earth from the ſurface, which at that time was frozen to the depth of ſeven feet. At firſt it flowed rapidly,

rapidly, then gradually ſlower, on all ſides of the hill; and, according to the information of credible witneſſes, who, a few hours after the eruption, rode thither from the farm, it was not perceptibly warm, though a thick vapour aroſe from it, owing to the cold ſtate of the atmoſphere. Some Kozaks, diſpatched to the place, on the contrary, aſſert that the mud, when firſt diſgorged, was hot. The confuſed whiſtling, and bubbling noiſe were heard till a late hour of the night; and the mud was forced out ſometimes to the height of twelve feet, even on the third day. Since that period, the mountain once more commenced to diſcharge and throw up mud above its ſummit; but no fire was viſible, either during the day or at night. In March, a land-ſurveyor was ſent from Taman, in order to take a plan of the Kuku-obo, which is communicated in the twelfth vignette. He aſcertained the firſt opening *A.*, on the top of the hill, to be from ten to twelve fathoms wide, and the true gulf, or crater, *B.* within it, to be about three feet ſix inches in diameter. He alſo obſerved a vapour occaſionally aſcending, and mud, mingled with rock-oil, flowing out; of which he brought ſome ſpecimens of a ſtrongly bituminous nature. The currents of mud *C.C.C.* were nearly of the ſame extent as I found them in the enſuing ſummer.

The ſummit of the mountain was for ſome time inacceſſible, on account of the deep, ſoft, viſcous mud, with which it was ſurrounded. But, after being hardened by the continued drought, the whole maſs could be paſſed over, and examined. When I viſited this hill, the ſtate of the mud, and of the opening, was as follows: On its ſurface appeared a diſgorged maſs of mire, which may be eſtimated at one hundred thouſand

cubic fathoms: it covered the whole upper part of the hill, and was diſperſed in various irregular currents, ſpreading particularly over the Weſt and South ſides; its depth being from two to three arſhines, or from four feet eight inches to ſeven feet; and the whole reſembling in conſiſtence a ſtiff pudding with a thick edge. The North-eaſtern ſtream is the deepeſt and moſt conſiderable, being very broad at its upper part, and extending, together with a narrower one in the Weſt-ſouth-weſt quarter, as far as the level baſis of the mountain. The former is almoſt four hundred fathoms, and the latter is upwards of three hundred fathoms in length. Three others, nearly parallel on the North-weſt, and one branch to the South, are both ſmaller and of leſs extent. Laſtly, on the eaſtern ſide, the mud had formed only a prolonged round maſs; being interrupted in its farther progreſs over that part of the mountain by an elevated ridge. On the ſurface of all theſe ſtreams of mud, I noticed a few ſmall heaps, eſpecially towards the edges, accumulated by the pieces of dry cruſt, which had been thruſt together by the preſſure of the fluid maſs, not unlike what happens in the breaking up of ice. In two places, the mud had in a manner formed petty iſles, by ſurrounding the elevated ground. On the upper part of the mountain, around the gulf that diſcharged this enormous maſs from the bowels of the earth, it is ſomewhat thicker; and, on one ſide of the crater, there lies a ſemi-circular piece of the old argillaceous ſuper-ſtratum, nearly a fathom in extent, and above two arſhines in depth: it is yellower than the freſh mud, and appears to be one-half of the lid that formerly covered the gulf; being turned over, and partly buried in the mire. The South-weſtern ſtream only

(in

(in which direction the ſummit of the hill more ſuddenly declines, and is in a manner furrowed) is overflowed by a more liquid mud, which ſeems, at different intervals, to have excavated a channel reſembling that of a rivulet, and being about twelve paces broad: at the bottom, however, it is loſt in the thick layer of more ſolid mud, where the drier matter is collected into ſeveral heaps. Beneath the mire, in this neighbourhood, I found not only various ſpecimens of very brilliant pyrites, in cubic cryſtals, partly looſe and partly attached to the marl, in a perfect ſtate, but likewiſe met with the ſame foſſil inſerted in the crevices of the marl-ſtone; a ſufficient proof, that ſuch pyrites had been expelled from the ſuperior ſtratum, which had undergone no changes by fire. The mud itſelf, the largeſt ſtream of which is from ſixty to one hundred fathoms broad, was then but ſuperficially covered with a dry cruſt: being cracked, it was unſafe to walk over it; and, on removing a piece from the top, the ſubjacent part was ſoft and adheſive like moiſtened clay. On account of its rugged and uneven ſurface, it was as difficult to paſs over the mire, as if it had been congealed by the froſt.

The whole of this prodigious maſs is perfectly uniform, reſembling a blueiſh-grey fat clay, interſperſed with fine particles of mica. When moiſt, it may be kneaded; but, in a dry ſtate, it ſeparates, like the clayey mud of roads, into irregular pieces, or crumbles into fragments, leaving crevices of ten, two, or three inches broad; though it retains ſome ſolidity, when in lumps. I could not diſcover any vitriolic, and in a few places only a trifling ſaline effloreſcence on the ſurface of the mud: by the teſt of acids, it produced a ſlight efferveſcence.

The

The largeſt of the fragments of ſtone, diſperſed through this maſs, and not amounting to the two thouſandth part of the whole, are of the ſize of two clenched hands; but moſt of them are ſmall, ſome being of a recent fracture, and others ſlightly poliſhed. They conſiſt principally of the following ſorts, which are pure, occaſionally reddiſh, and in a manner burnt, though not decompoſed:

1. A grey, partly ſonorous ſchiſtus, of marly clay, in flags half an inch thick, ſlightly effervеſcent with acids.
2. A ſimilar foſſil in thicker layers, and in pieces of hard fracture, but frequently radiated; and the fiſſures of which are ſometimes incruſted with pyrites.
3. A browniſh-grey loamy ſchiſtus, in pieces of an inch thick, ſometimes ſmooth, of an earthy fracture, and not effervеſcent.
4. An earthy, whitiſh, friable, argillaceous ſchiſtus, that ſplits longitudinally like wood; is alſo divided into perfectly round annual rings, and does not effervеſce with acids.
5. A ſolid whitiſh-grey lime-ſtone, in layers two inches thick, and ſometimes exhibiting obſcure characters in its fracture, which is generally ſmooth.
6. A duſky-grey, lamellated, marly ſchiſtus, ſlightly effervеſcent, in layers ſcarcely from a half line to a line thick, and of an earthy fracture.
7. White chalk, of a coarſe, earthy conſiſtence.
8. A hard, whitiſh, calcareous ſchiſtus, which is ſtrongly effervеſcent; and, when broken, preſents numerous glittering points.

9. A

9. A duſky-grey, friable, ſlimy ſchiſtus, in thin plates interſperſed with ſmall particles of mica; crumbling between the fingers; being remarkably bituminous; and likewiſe ſtrongly efferveſcent.
10. A martial, very hard, grey, heavy, argillaceous ſtone, containing detached particles of pyrites, not efferveſcent, and of a ſmooth teſtaceous fracture.
11. Brown iron-ſtone, very little efferveſcent, breaking like ſhells, in ſmall plates, and pieces of an angular figure.
12. A ſimilar browniſh-grey mineral, heavier than the former, and not affected by acids.
13. A grey, ſolid, argillaceous ſtone, not efferveſcent, and interſperſed with ſmall vegetable particles.
14. A whitiſh calcareous marly ſchiſtus, in thin layers.
15. A blueiſh-grey calcareous marly ſchiſtus, in thin laminæ.
16. A brown, thinly laminated, friable, earthy, bituminous, marly ſchiſtus.
17. A grey argillaceous ſchiſtus, in thin layers, rather friable, and not efferveſcing.
18. Whitiſh, ſolid, calcareous ſtones, kidney-ſhaped, about the ſize of a fiſt, and internally full of cracks: they are remarkably cryſtallized, and ſtrongly efferveſcent.
19. A ſimilar hard, knotty foſſil, difficult to break, earthy in its fracture, and entirely ſoluble in acids.
20. A grey, hard, kidney-ſhaped, argillaceous ſtone, without any calcareous admixture; of a hornſtone-like but earthy fracture; inclining to white in the fiſſures. There are alſo ſome of a yellowiſh colour.

21. Grey-

21. Greyiſh-white, compact, kidney-ſtones combined with lime; ſtrongly effervescing with acids, and having an earthy fracture: they are ſomewhat ſoluble in water; but in acids, after a long and violent effervescence, fall to a grey earth, and preſent the appearance of aſhes, or a miry earth, mingled with lime.

The crater, which has thrown out this enormous maſs, was now entirely covered with a hard dry cruſt of mud, ſufficiently ſtrong to bear the weight of a man. It meaſured, as far as could be judged from its depth, ſomewhat more than twelve Paris feet in diameter. At its ſide were ſeen, in the mud, ſeveral traces of ſmaller apertures, about twenty-eight inches in breadth, and which had probably been formed by the more liquid matter, at a later period. On inclining the ear to the great cavity, a noiſe was diſtinctly heard from the bottom, ſimilar to the boiling of a large covered kettle; which, while I was on the hill, I could clearly diſtinguiſh like the whiſtlings of a tempeſt, accompanying diſtant thunder.

My ideas concerning this volcanic eruption of mud, and its phyſical cauſes, I have detailed in a French publication*, which has been tranſlated into the Ruſſian and German languages: nor do I ſee any reaſon to retract what I have there advanced, even after the event laſt deſcribed; though an iſland has, under ſimilar circumſtances to thoſe which accompanied the diſcharge of the Kuku-Obo, ſince ariſen in the Sea of Azof. On the contrary, this only renders the hypotheſis more probable, that, at a conſiderable depth under the iſland of Taman,

* *Tableau geographique de la Tauride*, 4to. and reprinted in 8vo.

as

as alſo beneath part of the peninſula of Kertſh, there is a ſtratum of coal or bituminous ſchiſtus in a ſtate of ſlow combuſtion; and that, in conſequence of the diſcharges which happen ſo frequently and in ſo many places, the ſea breaks in, and forms bays in the hollows, that have become extinct: hence are generated various kinds of vapours and gaſes, which by their elaſticity force themſelves through the clefts of the ſuperincumbent ſtrata, or through old craters; or, where they meet with leſs reſiſtance, make their way upwards with a loud report; and thus give riſe to all the phenomena before mentioned, and alſo to tranſient inflammations of hydrogen gas, on the acceſſion of external air. As ſoon as the force of the vapours, which ſupported the ſtratum incumbent on the burning layer, has ſubſided, in conſequence of having found a vent, the fragments of this ſhattered horizontal ſtratum fall in ſucceſſion, and by their preſſure diſcharge the mud, conſiſting of aſhes and ſea-water, at firſt with rapidity, but afterwards more ſlowly, through the newly formed apertures. Hence we may account for the ſaline nature of this mud, which ſtill riſes with bubbles of vapour, as alſo for the roots of ſedge, which have in ſome caſes been carried by the ſea-water into theſe ſubterraneous cavities and mingled with the mud; and, laſtly, for the fragments of various foſſils, through the ſuperincumbent ſtrata of which the vapours have forced their way. But, that ſuch eruptions ſhould moſtly take place on hills (where the reſiſtance is doubtleſs greater than on level grounds), may probably be explained by thoſe hills having likewiſe been produced by more ancient eruptions, and thus containing ready-prepared craters, through which the vapours found a more eaſy paſſage: this

appears to have inconteſtably been the fact, in thoſe of the Kuku-obo and the Kül-tepé above deſcribed. The rent appearance of the ſoil of Taman, with the gulfs and bays that divide it, may perhaps be aſcribed to the gradual ſinking of of ſtrata on the coaſt of that iſland.

Before I conclude my account of Taman, I ſhall ſay a few words reſpecting the Kozaks of Tſhernomorſki, who are ſprung from the ancient Kozaks of Saporogi, and to whom this iſland, with all the territory between the rivers Kuban and Yei as far as Uſtlabinſkoë-Krepoſt, has been granted. Although, after the abolition of their *Syetſh* and ancient conſtitution, in the year 1774, part of this once powerful body of unmarried Kozaks, who defend the whole of the low country on both ſides of the Dniepr, revolted and deſerted to the Turks, yet even in the laſt Turkiſh war they ſo far recovered the Imperial favour by their voluntary ſubmiſſion, and ſome bold ſervices rendered to the Ruſſians both by ſea and land, that, beſide the grant of the above-mentioned diſtrict, the defence of the then unoccupied frontiers of the Kuban, which had been agreed on at the peace of Kutſhuk-Kainardſhee, was committed to their charge. The Ukaſes to this effect, which were publiſhed on the 30th of June and 1ſt of July 1792, gave them all the privileges of other bodies of Kozaks, together with the full property of the ſoil, fiſheries, ſalt-marſhes, and the right of retailing ſpirits: they likewiſe permitted all thoſe who had formerly ſerved in the Syetſh, and all the families of the Kozaks then in the ſervice, to muſter and make up their complement fifteen thou-

ſand

ſand men, to be governed by their own Koſhevoi and Starſhines, and to receive annually, for the defence of the frontiers, a ſalary of twenty thouſand rubles. Farther, to thoſe who were willing to remove to Taman with their families, the ſum of thirty thouſand rubles was given on their firſt ſettlement; and, for their ſubſiſtence, the additional ſum of twenty-five thouſand rubles for one year, to be paid by the Governor of Taurida; under whoſe juriſdiction the Kozaks of Tſhernomorſki were in future to remain.—By virtue of theſe Ukaſes, and of the important privileges granted to the whole body, a conſiderable number of ſettlers, from Little Ruſſia and the Ukraine, in the following year, joined thoſe Kozaks who had ſurvived the war; ſo that, in 1794, according to the official reports received from that country, they amounted to twelve thouſand men. But the unhealthineſs of the climate on the lower banks of the Kuban, annually ſweeps away a great number of the inhabitants, chiefly during the prevalence of malignant fevers, which often prove ſuddenly fatal. The inſalubrity of the country proceeds not only from the humidity of the ſoil, which is very injurious in all hot climates (wells being almoſt every where diſcoverable ſo near the ſurface, that the water may be reached by the hand), but alſo from the thick fogs deſcending from the mountains; the calms experienced here during the ſummer; the negligence of the Kozaks in thinning the woods around their villages ſituated in the low lands; and the bad quality of the water, even that of the Kuban, occaſioned by its bed being ſo marſhy, that the very fiſh, abounding there, have a diſagreeable taſte. The ſoil, however, is exceedingly fertile, and well adapted to every purpoſe of

huſbandry. There is likewiſe plenty of game; though pheaſants, which were formerly numerous, are now become leſs frequent; but of fiſh there is great abundance. With better management, the country would afford moſt excellent paſture for cattle. The healthieſt ſpot is the iſland of Taman, the population of which is ſtill inconſiderable, having been greatly diminiſhed by the ravages of the plague in 1796. Horſes thrive here uncommonly well. The rich fiſhery of Atſhuef, where all kinds of ſturgeon are caught, might alſo become a ſource of riches, if it were ſufficiently attended to; as the caviar, prepared by the Kozaks of Tſhernomorſki, is already preferred to that of Aſtrakhan, and exported in large quantities from Taganrog to Conſtantinople.

The principal ſettlements of the Kozaks of Tſhernomorſki are, Taman, Temruk, and Atſhuef, together with the villages or kurens along the upper banks of the Kuban. The capital, or ſeat of the *Koſhevoi* and Council of War (*Voiſkovaya Kanzellaria*), is Ekaterinodar, two hundred and ſixty-two verſts diſtant from Taman. In theſe places, about two-thirds of the whole body generally reſide; a thouſand men occupy the lines towards the mountains, and thoſe ſeparating the reſtleſs Circaſſians; a ſimilar number are ſtationed in and about Ekaterinodar, as a body of reſerve; one thouſand are computed for manning the flotilla that lies in the Bugas, conſiſting of about twenty light veſſels; and, in time of war, a detachment of a thouſand men is commonly ordered to the army. They have alſo upwards of one hundred pieces of artillery, of different calibres, which are diſpoſed, partly on board the flotilla, and partly at various poſts.

The

The growth of vegetables in Taman, notwithſtanding its ſandy ſoil, is uncommonly luxuriant, on account of its conſtant humidity. The plants, which I obſerved generally to prevail in the month of June, are the following:

Veronica ſpicata.
— — *paniculata.*
Lolium perenne.
Melica lanata.
— — *altiſſima.*
Holcus odoratus.
Panicum viride.
— — *crus Galli.*
Elymus Meduſae.
Scabioſa ucranica.
Gallium verum.
— — *glaucum.*
Sium Falcaria.
Pimpinella dioica.
Statice Coriaria.
— — *trigona.*
Verbaſcum nigrum.
— — *Thapſus.*
Eryngium campeſtre.
Salſola Tragus.
— — *Kali.*
Onoſma echioides.
Echium rubrum.
— — *altiſſimum Jacq.*
— — *vulgare.*
Aſparagus vulgaris.
Aſparagus volubilis.
Hyacinthus maeoticus.
Ornithogalum narbonenſe.
Allium deſcendens.
— — *pallens.*
Dianthus dichotomus.
Cucubalus Otites.
— — *tataricus.*
Gypſophila paniculata.
Polygonum Convolvulus.
Peganum Harmala.
Agrimonia Eupatoria.
Euphorbia ſegetalis.
Reſeda Lutea.
Rubus fruticoſus.
Prunus ſpinoſa.
Roſa pygmea.
Potentilla recta.
Delphinium Conſolida.
Thalictrum majus Jacq.
Teucrium chamaedrys.
— — *ſibiricum*, commonly bearing white flowers.

Marrubium

Marrubium peregrinum.
Salvia Aethiops.
— — *nemoroſa.*
Phlomis herba venti.
Antirrh. geniſtifolium.
Melampyrum arvenſe, with pale and white flowers.
Stachys annua.
Lamium purpureum.
Orobanche laevis.
Lepidium ſalſum.
Siſymbrium altiſſimum.
Crambe maritima.
Bunias Cakile.
Melilotus flava.
Medicago falcata.
— — *cochleata.*
Coronilla varia.
Lathyrus pratenſis.
— — *tuberoſus.*
Vicia cracca.
Aſtragalus onobrychis.
Glycirrhiza glabra.
Hedyſarum onobrychis.
Tragopogon pratenſe.
— — *orientale.*
Senecio Jacobaea.
Centaurea amara.
— — *paniculata.*
— — *tatarica.*
— — *ſalmantica.*
— — *ſcabioſa.*
— — *ſolſtitialis.*
Artemiſia auſtriaca.
— — *Santonica.*
— — *Abſinthium.*
— — *campeſtris.*
Xeranthemum annuum.
Achillea millefolium.
Onopordum acanthium.
Carduus nutans.
— — *acanthoides.*
— — *polyanthemus.*
— — *cyanoides.*
Inula germanica.
— — *oculus Chriſti.*
Carthamus lanatus.
Chryſanthemum ſegetum.
Cichorium Intybus.
Gnaphalium arenarium.
Alcea ſicifolia.
Hypericum perforatum.

The ancient villages, built by the Circaſſian and Tartar inhabitants of this country, as alſo thoſe of the Kozaks of Nekraſov, are entirely demoliſhed, and nearly levelled with the ground. Of the

the old Greek cities, ſtill fewer veſtiges are left, except the city of Taman, and the inſcriptions on ſtones, that are found in various parts of the iſland.

The ferry-boat for croſſing over to Yenikalé, being ſtationed at the Severnaya-Koſſa, where the Boſphorus is only four verſts broad, I departed early on the 17th of June, in order to reach the latter place. Immediately beyond the ruins of the village of Buſhukoi, we noticed various ſepulchral hillocks, and a very high fortification. Its form is that of an oblong, ſquare redoubt, with bonnets at the angles, and an entrance from the ſea-ſide; the whole being about ſixty-five paces in length, by fifty in breadth, and ſurrounded with a very ſhallow moat overgrown with weeds. From this fort, I ſaw at a diſtance, between two ſmalls bays formed by the Tamanſkoi-Saliv within the Severnaya-Koſſa, a barrow with a flat top, but ſteep towards the ſea. Curioſity induced me to viſit it; and I was rewarded with a complete view of the interior of a ſepulchre, erected by the ancient Boſphorians, and containing urns. Here I could clearly diſtinguiſh the manner in which the loamy earth had ſucceſſively been accumulated in convex ſtrata. Beneath were the cineraries, diſpoſed by the ſide of and above each other; being more or leſs covered with earth. Beſide the large unglazed urns of red earthen-ware, there were alſo ſome ſhort thick pipes of clay, placed in this barrow for ſome unknown purpoſe, and having a flat ſtone above and below. All the fragments of theſe urns were in their original ſituation; one of them was of the ſingular form delineated at Fig. *B.*, Vignette

Vignette 10.; and appeared to be four ſpans and two-thirds in diameter, by three ſpans in height. I ſaw ſeveral common cineraries of a ſmaller ſize, conſiſting of flat ſtones put togegether in the ſame manner as that repreſented in Vignette 10. But the aſhes and bones of ſome of the deceaſed ſeemed to have been looſely thrown upon a bed of ſoft ſea-weed (which plant had become perfectly white), and to have been covered with earth. Beſide the human remains, I noticed ſome bones of horſes; from which it may be inferred, that ſuch tumulus had been erected over the bodies of thoſe who had fallen in battle. Adjacent to this hillock, was apparently the commencement of another barrow, flatter and more remote from the ſea; and, in the neighbourhood, there were traces of ſome ancient ponds.

Departing hence round the bay, and again taking a northerly direction towards the road, we deſcried at a ſmall diſtance from the Severnaya-Koſſa, among various ſepulchral tumuli to the right, another work reſembling an ancient fortification: it was in all reſpects ſimilar to the above-deſcribed oblong ſquare; having raiſed angles and a moat, now overgrown with weeds. Around it were four large, and an equal number of ſmall, ſepulchral hillocks, originating from battles, or aſſaults that had taken place on this fortreſs. The *Vicus Achillæus* of Strabo appears to have ſtood near this ſpot; though I would by no means inſinuate, that ſuch intrenchment indicates its ſituation.

Soon after I arrived at the Severnaya-Koſſa itſelf, which is a narrow, low iſthmus, ſcarcely a fathom above the level of the ſea; extending in a direct line to the South-weſt; and dividing

ing the bay of Taman from the Boſphorus. At firſt, it is in many places only from twenty to fifty fathoms broad, but its breadth progreſſively increaſes; and, on the ſide next the bay of Taman, it forms, by the continual growth of reeds on the adjacent ſhoals and banks, ſeveral extenſive receſſes and marſhy hollows, which are the favourite reſort of wild boars. It preſents, however, on the ſide next the Boſphorus, a flat ſandy ſhore, on which are found great quantities of marine ſhells. It commences about ſix or ſeven verſts from the farm of Buſhukoi, and is about eighteen verſts in length: among the reeds were heard many blackbirds. The paſſage over the Boſphorus, from the neck of land to Yenikalé, is the ſafeſt and moſt convenient; being only four verſts. During calm weather, we could clearly diſtinguiſh in the ſtreight a ſmooth line or ſtreak, croſſing the channel, where the yellowiſh current from the Sea of Azof meets the dark-coloured waters of the Black Sea; and this current uſually ſets outward, unleſs it be oppoſed by the wind.

On the 20th of June, I returned to Kertſh, determined not to leave its vicinity till I had viſited the coaſt as far as Point Takil-Burun; which appeared to be intereſting, on account of a blue earth thence obtained. At this point, the Boſphorus begins to take a ſoutherly direction.

The greateſt elevations in the ſtratum of lime-ſtone are thoſe around Kertſh, preſenting the hillocks already mentioned. Towards the low country of Kamyſh-Burun, which is interſperſed with ſmall lakes, and on approaching the long lake of

Tſhurabaſh, which extends to the North-weſt, theſe eminences decline, and again riſe to an elevated plain, near Kara-Burun. Soon after, we deſcended to an oblong ſalt-lake called Shungulei, and lying near the flat ſhore: it extends from Eaſt to Weſt; is about eight verſts in length, and about ſixteen verſts diſtant from Kertſh; but, in conſequence of the numerous ſprings and torrents, that flow into it from the high lands, eſpecially from the North-weſt, it ſeldom forms any ſaline depoſition. Like all the other ſalt-lakes in the Crimea, it is ſeparated from the ſea only by a low and narrow ſand-bank, over which the waves appear to be driven during tempeſts. Around its banks are ſeveral Tartar villages, ſituated near ſprings and fountains; namely, Tobetſhik, Orta-Saraimen, Ortel, Kopinegen or Kopetſhegen, and Shungulek. The ſhore is, hitherto, in high rocky places, from eight to ten, and even fifteen fathoms above the level of the ſea. About nine verſts from the ſalt-lake, we arrived at the coaſt of the Takil-Burun, which is of ſimilar height, but gradually declines. Beneath this, and near the ſurface of the water, there is a ſtratum of ochreous iron ore, abounding with ſhells, and nearly reſembling that below Taman already deſcribed. From this layer, a beautiful ſky-blue ferruginous earth has been dug, in lumps and veins, which the regiments of chaſſeurs at Kertſh and Yenikalé have almoſt entirely conſumed as a material for painting. The moſt remarkable objects in ſuch foſſil are the ſhells found in the blue earth, with which they are completely filled. Of theſe I obtained ſome ſpecimens: though calcined, they were ſolid, in good preſervation, and of the ſame elegant ſpecies, that are found interſperſed in the ochre near Taman. In ſome of theſe bivalves,

bivalves, a radiant ſelenite of a very dark blue colour had formed in the centre of this earth; ſuch as I had not obſerved in any other ſituation.

On the heights of Takil-Burun, are ſeen ruins of houſes, which, however, appeared to be of modern erection. From theſe eminences, I returned in the night through Ortel into the poſt-road, which I reached near the ſtage of Akkos; whence I purſued my route to Akmetſhet.

The peninſula of the Boſphorus formerly preſented a greater number of conſiderable places than other parts of the Crimea. Here, likewiſe, occur more veſtiges of antiquity, relating to the times of the Greeks, as well as of the Genoeſe and Venetians. Thus, beginning from the ſea of Azof, where the Venetian factories are chiefly diſcoverable, traces of former ſettlements are found on the *Kaſan-dip*, or Kettle-Promontory; which projects to a conſiderable diſtance into the ſea, in a round form, with elevated ſtratifications of lime-ſtone, but is apparently ſunk in the middle: it extends between Arabat and the Boſphorus, where the ruins of a church are ſtill diſcernible, and in the vicinity of which lies the great ſalt-lake of Aleeyn-ſköe. Still farther, on the point of land called Uſuk-Kaleſſi, about ſixteen verſts to the weſt of Cape Fanary, at the mouth of the Boſphorus, there appear the ruins of a ſettlement, which the Tartars aſſert to be of Genoeſe, though it is probably of Grecian origin. Similar veſtiges are found on Mount Opuk, which abounds with tulips; being ſituated on the Black Sea, about ſixteen verſts to the weſt of point Takil-Burun, where even ſhips of war find excellent anchorage. Some traces of another town are diſcoverable near point Taſh-Katſhik, at the

eaſtern extremity of the bay of Kaffa, in the vicinity of which there is likewiſe a ſalt-lake.

On comparing all theſe veſtiges of ancient colonies along the coaſt with the geography of Strabo, and the *Periplus* of Arrian, and *Scymnus Chius*, the names of the former ſettlements may be aſcertained with tolerable accuracy. Thus, *Myrmecium*, which is noticed as twenty-five ſtadia, or five verſts, from *Panticapaeum*, appears to have occupied the ſpot, now diſtinguiſhed by a ruined tower, and ſome wells on the ſea-ſhore, between Kertſh and Yenikalé. *Porthmion*, which is probably the ſame with the *Parthenium* of Strabo (unleſs it were the above mentioned Uſuk-Kaleſſi), muſt have been ſituated exactly on Cape Fanary, which contributes to form the narrow channel of the Boſphorus, leading to the ſea of Azof, and the *Vicus Achillaeus* in the oppoſite part of the iſland of Taman, on the Aſiatic ſide of the Boſphorus.—*Nymphaeum*, the diſtance of which Strabo does not preciſely ſtate, appears from the *Periplus* to have ſtood in the environs of the bay, between the preſent battery of Pavlofsſköe and the Kamyſhburun. I regret that I could not examine this part of the coaſt with ſufficient minuteneſs, to diſcover the remains of that place.—The Greek colonies of later date, on the European ſide, and which are not noticed by Strabo, were, according to *Scymnus*, as follow:

1. *Acros-comion*, ſixty-five ſtadia, or thirteen verſts from *Nymphaeum*, which diſtance determines its ſite preciſely at Takil-Burun.
2. *Kytas*, thirty ſtadia, or ſix verſts, muſt have ſtood ſomewhere between Takil-Burun and Mount Opuk.
3. *Cimmerium*,

3. *Cimmerium*, ſixty ſtadia, or twelve verſts, which brings its ſituation to the ruins of Enken-kalé, near Mount Opuk: here are ſafe roads for ſhips of war, with good anchorage, and ſhelter from the North-weſt winds.
4. *Cazeca*, one hundred and eighty ſtadia, or thirty-ſix verſts, ſeems even in its preſent name to agree with Point Taſh-Katſhik, which forms the eaſtern extremity of the bay of Theodoſia; where ſprings, and veſtiges of an ancient colony occur, together with a ſalt-lake in its vicinity.
5. *Theodoſia*, though it does not exactly coincide with the preſent town of that name, according to the diſtance ſtated in the Periplus, muſt in all probability be the ſame; as I could diſcover no traces of an ancient city near any other part of the bay.
6. *Athenaeon*, two hundred ſtadia, or forty verſts, from Theodoſia, was moſt probably ſituated at Point Koos, or near the harbour of Sudagh; conſequently the port of the Tauro-Scythians, or *Lampas*, correſponds with the preſent Lambat. Farther, the Ram-head, or *Criumetopon*, agrees with the high mountains ſurrounding the diſtrict of *Alupka;* the harbour of *Eubulon*, or *Symbolon*, with *Balaklava;* and, laſtly, the city of *Cherroneſus* is ſufficiently diſtinguiſhable by its ruins. The diſtances of all theſe places pretty accurately correſpond with thoſe ſpecified in the Periplus.

General Remarks on the Peninſula of the Crimea.

I.

ON THE INHABITANTS.

THE population of the Crimea formerly amounted to at leaſt half a million. Its firſt diminution took place in 1778; when, in conſequence of the peace concluded with the Turks, above thirty thouſand Chriſtians, as well Greeks as Armenians, being at that time ſettled in Crim-Tartary, (comprehending many tradeſpeople, uſeful artiſans, and manufacturers,) were removed to the country between the Don and the Berda, beyond the Sea of

of Azof. Still more numerous was the emigration of the Tartars, ſoon after Ruſſia had taken poſſeſſion of the Crimea, from the year 1785 to 1788. During this period, many thouſand Tartars, eſpecially in the parts adjacent to the maritime towns, ſold their property and goods at the loweſt prices, and withdrew to Anatolia and Romelia, whither almoſt all the ſurviving individuals of the then reigning family of Ghirei, and many nobles, alſo retired; not to mention thoſe who were killed in the preceding troubles, or were afterwards deſtroyed by the plague, and by various inſurrections. Thus, in the year 1793, when a cenſus was taken throughout the empire, there were in the whole diſtrict of the then erected government, or *Oblaſt* of Taurida, no more than 85,805 males and 71,328 females, together 157,125 perſons, including all ages: namely *,

	Males.	Females.
Tartar nobility, or Murſes, - -	570	465
Prieſts of all claſſes, - - -	4,519	4,105
Common Tartars employed in agriculture,	48,484	99,280
Slaves of various nations, - -	343	405
Nagays, taken priſoners at the capture of Anape, and diſtributed among the nobles, - - -	4,331	3,593
Gypſies, - - -	1,664	1,561
Merchants, and traders in the towns, of various claſſes, - -	1,780	1,048

* This calculation widely differs from the total number here ſtated, as is evident on comparing only the data of the females with each other: it was therefore impoſſible to reconcile ſuch inaccuracy.—*Tranſl.*

Citizens

	Males.	Females.
Citizens and artiſans, - -	6,220	5,346
Servants of all deſcriptions, - -	1,185	247
Ruſſian houſehold ſlaves, - -	110	116
Ruſſian coloniſts under the Crown, -	4,861	3,397
Settlers newly eſtabliſhed by the nobility,	1,987	1,672
Perſons belonging to the Greek Regiments,	1,165	586
Kozaks of the corps of Tſhernomorſki, -	5,803	
Miniſters of the Chriſtian religion, and ſervants of the Church, -	89	33
Servants and officers of the crown, with their families, - -	382	270

This population, which at firſt was very incorrectly computed, received conſiderable additions by the new cenſus in 1796, eſpecially with reſpect to the Tartars; who were before calculated to be rather more than 60,000 males, but then already amounted to 90,000; and, as it was permitted by an imperial order in 1800, to rectify the errors that might have occurred, the number of the Tartars was, on cloſer inveſtigation, found to be 120,000 males of all ages and conditions; nor, perhaps, is this calculation ſufficiently accurate.

The Tartar inhabitants of the Crimea may be divided into three claſſes. The firſt includes the Nagays, of whom I have ſpoken in the preceding volume of theſe Travels, pp. 531, and following; as alſo thoſe Nagays, who, being a remnant of the Tartars of the Kuban, were taken priſoners in the Turkiſh fort of Anape, and, to the number of 4,500, carried into the Crimea; where they were diſperſed among the nobility for their maintenance; but afterwards, by order of the Court, they were con-

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Midland sculp.

conſidered as ſubjects, and ſtill dwell in their own permanent villages; having acquired opulence by rearing cattle and cultivating lands, from which they are enabled to pay high rents to their landlords. All theſe Nagays are, as their features evince, the unmixed deſcendants of the Mongolian tribe, who formed the bulk of the army of Tſhingis-Khan, which invaded Ruſſia and the Crimea.

The ſecond claſs conſiſts of thoſe Tartars, repreſented in Plate 20, who inhabit the heaths or ſteppes as far as the mountains, eſpecially on the North ſide; and who in the diſtrict of Perekop, where they are ſtill unmixed, retain many traces of the Mongolian countenance with a thinly ſcattered beard: they devote themſelves to the rearing of cattle to a greater extent than the mountaineers, but are at the ſame time huſbandmen, though they pay no attention to gardening. In ſituations deſtitute of ſtone, they build, like the inhabitants of Bucharia, with unbaked bricks of clay, and make uſe of dried dung for fuel; of which they prepare large quantities, and pile it up in the ſame manner as turf, to ſerve them during the winter. Nearer to the mountains, theſe Tartars, as well as the nobles, are more intermixed with the Turkiſh race, and exhibit few of the Kalmuk-Mongolian features: this obſervation alſo applies to the Crimean nobility, in whom thoſe peculiarities are almoſt entirely obliterated.

To the third claſs belong the inhabitants of the ſouthern vallies, bounded by the mountains; a mixed race, which ſeems to have originated from the remnants of various nations, crowded together in theſe regions at the conqueſt of the Crimea by the armies of the Mongolian leaders; and which in part (as

has already been ſtated) diſplay a very ſingular countenance, with a ſtronger beard, but lighter hair; the other Tartars not conſidering them as true deſcendants of their race, but giving them the contemptuous name of Tat*. They are alſo, by their coſtume, (Plate 12.) remarkably diſtinguiſhed from the common Tartars of the heaths, as repreſented in Plate 20; though the dreſs and veils of the women are alike. Their houſes, or huts, are partly formed under ground; being generally conſtructed againſt the ſteep precipices of mountains, one half excavated from the earth, or rock, and only the front raiſed with rough ſtones; having at the ſame time flat roofs covered with earth. There are among them ſkilful vine-dreſſers and gardeners, but they are too idle to undertake new plantations, availing themſelves only of thoſe left by their predeceſſors, eſpecially the induſtrious Greeks: hence very few young trees are ſeen in their gardens. They alſo grow flax and tobacco, which, as objects of culture, are unknown to the Tartars of the heaths: with proper encouragement, they might probably be induced to cultivate the vine, and attend to the production of ſilk. On the whole, they are at preſent unprofitable and unworthy inhabitants of thoſe paradiſaical vallies, in which they have always ſhewn themſelves the firſt and moſt ready to revolt againſt the Ruſſian Government. Theſe thoughtleſs people even deſtroy the foreſts on the mountains in the moſt effectual manner, partly by their indiſcriminate felling of trees, and partly by their numerous herds of goats. In the laſt war with Turkey, they were all ordered to dwell at the diſtance

* From the Turkiſh word *Mur-Tat*, which ſignifies a renegado.

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Medland Sculp.

of ten verſts from the coaſt, in order to avoid the danger ariſing from their acting as ſpies and traitors: it would, indeed, be for the general good, to remove them entirely from theſe vallies into the interior of the country; at the ſame time peopling the former with induſtrious ſettlers, who would contribute to the proſperity of the empire, by the cultivation of wine, oil, ſilk, and cotton; which will never be attempted by the preſent inactive poſſeſſors.

In the coſtume of the Tartars inhabiting the plains, there is ſome variety. Young perſons, eſpecially thoſe of noble or wealthy families, dreſs nearly in the Circaſſian, Poliſh, or Kozak faſhion, as exemplified in the ſtanding figure of plate 21, with ſhort, or ſlit, ſleeves in the upper garment. The nobility of more advanced age wear, like the common Tartars, unſlit ſleeves; and old men ſuffer the whole beard to grow; whereas the young and middle-aged have only whiſkers, as repreſented in the ſame plate. Their legs and feet are dreſſed either in half-boots of Morocco or other leather, or they uſe ſtockings of the ſame material, eſpecially in the towns: over theſe are worn ſlippers or clogs, for walking abroad; and, in dirty weather, a kind of ſtilt-ſhoes. Their heads are uniformly ſhaved; or, at leaſt, the hair is cut very ſhort, which they cover with a high cap, quilted at the top with cotton, and generally green, being edged with black or grey lamb's ſkin. This cap is never moved by way of compliment. The clergy and the aged wear under it the *Fez*, or a red, woven calotte. Thoſe who have performed a pilgrimage to Mecca, are diſtinguiſhed by a white handkerchief round the edge of their cap; ſuch being the mark of a *Hadſhi*. There are alſo in the

Crimea ſome Emirs, who wear the green fillet round their head. Among the young nobility, however, Circaſſian caps are the moſt common head-dreſs.

The phyſiognomy of the true Tauridan Tartars bears great reſemblance to that of the Turks and Europeans. There are handſome, tall, robuſt people among them; and few are inclined to corpulency: their complexion is rather fair, and they have black or dark-brown hair. The boys and youth have moſtly a pleaſing and delicate countenance; to which circumſtance, together with the reſtraints impoſed on women, may, perhaps, be attributed the odious propenſities prevailing here, as well as in Turkey and Perſia.

The dreſs of the Tartar women (Plate 22) is very different from that of the Nagays: they are in general of low ſtature, owing probably to their confined treatment in early life; though their features are tolerably handſome. Young women wear wide drawers; a ſhift reaching to their ancles, divided before, and drawn together at the neck; a gown open in front, made of ſtriped ſilk, with long ſleeves, and adorned with broad trimmings embroidered with gold: they have alſo an upper garment of ſome appropriate colour, with ſhort, thick Turkiſh ſleeves, edged with ermine, fur, or gold lace. Both girls and married women faſten their gowns with a heavy cincture or girdle, having in front two large buckles, like thoſe made by the Armenians and Jews, of emboſſed or filigrane work; and which were once in faſhion among the Ruſſian ladies at Peterſburgh and Moſco. Their hair is braided behind in as many looſe treſſes as it will afford; and is covered either with a ſmall red cap or *Fez*, eſpecially during childhood,

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or with a handkerchief croſſed under the chin. Their fingers are adorned with rings, and the nails of their hands and feet tinged with Kna (*Lawſonia*), which is imported from Conſtantinople, and is ſometimes mixed with vitriol, to render the colour browner and more permanent; as it will thus continue about two months. But paint is rarely employed by young females.

Married women cut off their hair obliquely over their eyes, and leave two locks alſo cut tranſverſely, hanging down their cheeks; they likewiſe bind a long narrow ſtrip of cloth round the head, within the ends of which they confine the reſt of the hair, and turn it up from behind, braiding it in two large treſſes. Like the Perſians, they dye their hair of a reddiſh brown with *Kna*. Their under garment is more open below, but in other reſpects ſimilar to that of the unmarried, as are their upper dreſs and girdle. They paint their faces red with cochineal, or other drugs, and white with an oxyd of tin, called *Aklyk*, which they carefully prepare over a dung fire, in ſmall earthen pipkins*. They alſo dye the white of the eye blue, with a finely pulverized preparation of copper (*Maſetaſh*) brought from Conſtantinople, and, by a

* In order to compoſe the faſhionable greyiſh-white Tartar coſmetic, the women firſt heat a pot, covered with clay, in a ſtrong dung fire, till it is glowing hot. The veſſel, being thus prepared, is placed with the opening ſideways in another dung fire, which they accumulate around it; then bars of tin are thrown in, and the opening is cloſed with an iron cover, till the metal is melted. Next, the lid is removed, and the tin is continually ſtirred with an iron ſpatula: when it is perfectly fuſed, they add ſome ſheep's tallow, with a ſmall piece of lead and cyprus-ſoap, which muſt be burnt on the tin till they diſappear. The operator continues to ſtir the maſs till the metal gradually becomes calcined; after which it is ſifted and ſold. This coſmetic imparts a pale white hue, nearly reſembling the natural colour of the ſkin.

particular

particular proceſs*, change the colour of their eye-brows and hair to a ſhining black, which is retained for ſeveral months. At weddings, or on other ſolemn occaſions, the wealthy farther ornament their faces with flowers of gold-leaf; colour their hands and feet, as far as the wriſt and ancle, of an orange hue, with kna, and deſtroy all the hairs on the body with a mixture of orpiment and lime.

The women, both married and ſingle, wear yellow half-boots or ſtockings of morocco leather (*Terluk*), or ſocks: for walking, they uſe red ſlippers with thick ſoles; and, in dirty weather, put on ſtilt-ſhoes, like the Circaſſian females. Abroad they wear a kind of undreſs gown (Feredſhé) of a looſe texture, manufactured by themſelves of white wool, and called *Chirka:* next, they wrap ſeveral coloured Turkiſh or white cotton handkerchiefs round their head, which they tie under the chin, and over all this throw a white linen cloth reaching half-way down the arms, drawing it over the face with the right hand; ſo that their black eyes alone are viſible. Independently of this mummery, they evade as much as poſſible the company of men; and, when they accidentally meet a man in the ſtreets, a falſe modeſty enjoins the woman to avert her face, or turn towards the wall.

The nobility and the prieſthood are highly reſpected among the Crimean Tartars; and, in former times, were often able to

* Twenty-five of the beſt galls (*Balamut*) are boiled in oil, then dried, and reduced to a fine powder; to which are added three drachms of green vitriol, one of cream of tartar, one of indigo, and a tea-cupful of Kna, or *Lawſonia alcanna*. The four firſt mentioned ingredients are well agitated with two pounds of water; and then the powder of Kna is gradually mixed with them ſo as to form a paſte. With this compoſition, the hair is carefully anointed, ſo that the ſkin may not be blackened; and a kerchief is tied round it during the night. The next morning the hair is waſhed.

make

make a formidable reſiſtance to the Khan, and even to effect his depoſition. The Khan was always choſen from the family of the Ghireis: I am, however, by no means convinced, that they ſprang from a direct deſcendant of Tſhingis-Khan. From this family (of which there is no male branch now remaining in the Crimea, though there are ſeveral in the Turkiſh empire) were alſo uniformly choſen the Kalga-Sultan, and Nuraddin-Sultan, who are the perſons next in rank to the Khan. The Tſhoban-ghirei are the only deſcendants of a collateral branch of the Ghireis in Crim-Tartary; who, at the requeſt made by one of the former Khans to the Sultan at Conſtantinople, were excluded from the right of ſucceſſion, which was formerly granted to their own family.

The other ancient Noble Families are:

1. The Shirins, a numerous and powerful race, dwelling chiefly between Karaſſubaſar and Kertſh: they alone enjoy the privilege of marrying the daughters of the Ghireis, and thence bear that ſurname in ſeveral branches of their offspring. This family (which has frequently proved dangerous to the Khans by its oppoſition, and under the laſt Shahin-ghirei-Khan was conſiderably thinned) is nevertheleſs very numerous. It derives its rank from a certain Dangi Bey, who, in former times, during a general rebellion, in which almoſt the whole race of Ghirei was deſtroyed, had the loyalty to conceal and ſave a youth of that houſe: at length the nobles, being tired with anarchy, elected this young prince their Khan; who, in gratitude to the Shirins, granted them the privilege they now enjoy.

The

The oldeſt man of this family is always honoured with the title of *Shirin-Bey*;* and, during the firſt years after Ruſſia had taken poſſeſſion of the Crimea, the Imperial Court granted him a penſion of two thouſand rubles. The Shirins alſo had their *Kalga*, who was the next in age of that conſanguinity. They are ſtill conſidered as the moſt dangerous and turbulent nobles.

2. The *Barüns*, or *Baruns* †; who reſided in the environs of Karaſſubaſar, but all of whom have now emigrated.
3. The *Manſurs*, who are ſtill a numerous family at Koſlof; and the oldeſt of whom alſo enjoys the title of Bey.
4. The *Sudſhuvuts*, of whom there is only a youth remaining, and ſettled to the eaſtward of Karaſſubaſar.
5. The *Ardins*, or *Arghins;* a tolerably numerous race; between Akmetſhet and Karaſſubaſar.
6. The *Yaſhláuvs*, once a very reſpectable family, and ſtill flouriſhing at Bakhtſhiſarai; the oldeſt of whom alſo bears the title of Bey. Two of the ſepulchral chapels at Eſki-yourt are ſaid to have been erected to the memory of the Yaſhláuv-Beys.
7. The *Daïrs*, who have alſo their Bey, poſſeſs large eſtates in the diſtrict of Perekop, as well as between the Salgir and the Suya.

Theſe ſeven ancient families never entered into the ſervice of the Khans, pretending to a kind of political independence; nor did they ever take the field otherwiſe than voluntarily.

* Bey is a title almoſt equal to that of Prince; but which many ſons of the nobility aſſume, without having any right to it.

† Probably from the Mongolian word *Baaron,* which ſignifies the right hand, and the right wing.

Their

Their tenants, however, being conſidered as ſubjects, were liable to ſerve. The revenues of theſe nobles conſiſted of the tenths from their landed property; the herds and flocks depaſtured on them (*Uſhuur*); the profits of their own huſbandry and live ſtock, as well as the Charadeſh, or tribute paid them by the Greeks, Armenians, and Jews. The other noble families are thoſe of, 8. *Kiptſhak*; 9. *Oirät*; 10. *Merkit*; 11. *Ablan*; 12. *Burultſha*; 13. *Bitak-Bulgak*; 14. *Subanghaſi-oglu*; and 15. *Yedei-oglu*; the two laſt of which properly belong to the Nagays, and moſtly dwell in the vicinity of Perekop; except a few of the race of Subanghaſi-oglu, who reſide in the neighbourhood of Akmetſhet. Another claſs of nobles, or Murſes, comprehends the Kapi-Chalki (ſervants of the Porte), deſcended from thoſe who have filled places of honour under the Khans, and living in a ſtate of perpetual jealouſy with the Shirins. The children of theſe placemen who had grants of eſtates from the Khans, ſometimes for life, and ſometimes in fee, inherited their nobility, but not always their wealth: for there are conſiderable numbers of poor Murſes, who are ſcarcely able to procure the neceſſaries of life, and are often compelled to accept of ſupport from the common Tartars: between the old nobility and this claſs a continual miſtruſt prevails.

There is another claſs, called Tſhelebi, which does not completely rank with the nobles, though it is diſtinguiſhed from the plebeian Tartars, and eſteemed as the deſcendants of the Muftis, and other dignified clergy. The ſuperior Tartar prieſthood conſiſts of the Mufti, who now enjoys the rank of General, and a penſion of two thouſand rubles; the Kaſi-or

Kadi-Eſker Effendi, and five Ulemas, who form a kind of ſynod or conſiſtory; have a ſmall ſalary; and the oldeſt of whom, by a late regulation, ſucceeds to the office on the death of a Mufti. The inferior clergy include the Town-Kadis, who are ſubordinate to the Mufti, and the Diſtrict or Village-Kadis, who are under the ſuperintendance of the Kaſi-Eſker; alſo the Khadyps, who are appointed at the chief or pariſh metſhets; and the common Imams: laſtly, all perſons converſant with written language, are called Mullahs; though not actually Imams. The officiating clergy in every metſhet enjoy the glebe, *vakuf*, bequeathed by will; and which conſiſts of garden, arable, and meadow land. The Kadis have a juriſdiction in all hereditary and matrimonial affairs, as well as in diſputes relative to landed eſtates, and their ſale. The Kaſi-Eſker is the ſuperior judge, with whom certain taxes on lands, together with their conveyance, are regiſtered in particular books, which ſerve as public documents.

It would be ſuperfluous here to enlarge on the religious ceremonies, nuptial ſolemnities, and other cuſtoms of the Tartars; as in every other reſpect they agree with thoſe of the Turkiſh Mahometans, ſo often deſcribed by travellers. Polygamy, however, rarely occurs even among the nobles and more wealthy inhabitants of towns; yet there are ſome perſons in the villages, who incumber themſelves with two wives. Male and female ſlaves are not common in that country; but the nobility ſupport numerous idle attendants, and thus impoveriſh their eſtates; while their chief pride conſiſts in rich and beautiful apparel for themſelves and their wives; and in handſome equipages to ride into town; being accompanied by a train

Geisler del.

Medland sculp.

a train of domeſtics, who follow them on every excurſion, though the chief employment of the latter is that of giving their maſter his pipe, at his demand; ſtanding in his preſence, or aſſiſting him to dreſs; and, in all other reſpects, living in the ſame indolent manner as their lords. Another ſource of expenſe is the purchaſe of elegant ſwords, and eſpecially of excellent blades; the diſtinction between the different ſorts of which, together with their names*, conſtitutes among the nobles a complete ſcience. They are alſo great admirers of beautiful and coſtly tobacco-pipes, together with expenſive mouth-pieces of milk-white amber, that are likewiſe uſed by the Turks, and of tubes of curious woods; but the *Kallian*, or the pride of the Perſians is ſcarcely known here; and the Tartars only employ ſmall ornamental bowls made of clay, which are almoſt every moment filled with fine-cut leaf-tobacco. The generality of theſe noble Lords, or Murſes, were ſo ignorant, that they could neither read nor write; and, inſtead of ſigning their names, they ſubſtituted an impreſſion of their rings, on which a few Turkiſh words are engraven. Some of the young nobility, however, are beginning to ſtudy not only the Ruſſian language, of which they perceive the neceſſity; but alſo apply themſelves more ſeduloufly to reading and writing, and thus become more civilized.—The expence of wearing apparel for the women ſhut up in their harems is, according to their manner and fortune, little inferior to that of Europeans; with

* The principal names of the blades, partly manufactured at Damaſcus and in Turkey, and partly of thoſe made in Perſia, are as follow: Ters-Maimun (in which the human face appears totally diſtorted, whence it derives its name, ſignifying a diſtorted ape); Kirk-Merduen, or forty ſteps; Choraſſan, Sungur, Tavan, &c.

this ſingle difference, that the faſhions among the former are not liable to change. Even the wives of the common Tartars are ſometimes dreſſed in ſilks and ſtuffs, embroidered with gold, which are imported from Turkey. In conſequence of ſuch extravagance, and the extreme idleneſs of the labouring claſſes (who only exert themſelves for procuring the neceſſary ſubſiſtence), there are very few wealthy individuals among the Tartars. Credulity and inactivity are the principal traits in the Tartar character. To ſit with a pipe in their hands, frequently without ſmoking, for many hours on a ſhady bank, or on a hill, though totally devoid of all taſte for the beauties of nature, and looking ſtraight before them; or, if at work, to make long pauſes, and above all to do nothing, conſtitute their ſupreme enjoyments: for this mode of life, a foundation is probably laid by educating their boys in the harems. Hunting alone occaſionally excites a temporary activity in the Murſes, who purſue their prey with the large ſpecies of greyhound, very common in the Crimea; or with falcons and hawks.

The language and writing of the real Tartars differ little from thoſe of the Turks; and the dialect of the mountaineers, who are ſubject to the Turkiſh dominion, bears a ſtill greater analogy to that of their maſters: on the contrary, the tongue of the Nagays deviates more remarkably; as they have retained numerous Mongolian phraſes, and make uſe of an ancient mode of writing, likewiſe mixed with the latter, and called Shagaltai. It is worthy of notice, that, in conſequence of their long and intimate connection with the Genoeſe, many words of that language have been incorporated with the

Tartar

Tartar tongue, eſpecially at Kaffa; while the Genoeſe have admitted into their dialect ſome Tartar and Greek expreſſions; as may be ſeen from the following examples:

GENOESE.	TARTAR.	
Caimacco, cocumacco.	*Kaimak.*	Clotted cream.
Cardaſcia.	*Kardaſch.*	Brother, boſom-friend.
Corbetta.	*Korbet.*	The arm.
Macrami.	*Macramé.*	A towel.
Buzarà.	*Buzarar.*	To injure.
Ramadan.	*Ramazan.*	A great noiſe.
Cifutti.	*Dſhifut.*	Jews, a name of reproach at Genoa; becauſe they are deſpiſed in that city.
Camallo.	*Chamall*, in the Turkiſh tongue *Camalè.*	A porter.
Leſto.	*Alleſt.*	Expeditious, nimble.
Hiſſa.	*Hiſſà.*	To make powerful efforts.
Taſſa.	*Tas.*	A cup.
Mangià.	*Mangià.*	To eat.
Barba.	*Barba.*	Uncle.
Lalla.	*Lalla.*	Aunt.
Carega.	*Caregla.*	A chair.
Mandillo.	*Mandil.*	A handkerchief.
Marmaggia.	*Marmalia.*	The rabble.
Savun.	*Sabun.*	Soap.
Catran.	*Katran.*	Tar.

Barbé.

Genoese.	Tartar.	
Barbé.	*Berber.*	A barber.
Sciorbi.	*Sciorba.*	To ſip.
Eté.	*Atà.*	Age.
Tatta.	*Tatta.*	Nurſe's huſband.
Matto.	*Mattu.*	A fool.
Camera.	*Camera.*	A chamber.
Galabà.	*Kalabalik.*	Uproar, commotion.
à Giabba.	*Dſhabba.*	To act the paraſite.
Aſion.	*Aſiún.*	Opium.
Fortunna.	*Fortunà.*	A ſea-ſtorm.
Timon.	*Timon.*	Cummin.
Orza.	*Orſa.*	Tow, or oakum.
Appoggia.	*Appoggia.*	
Ciàffio.	*Ciaffer.*	A heretic, faithleſs.
Giaccami.	*Giattar.*	Lying, ſitting.
Giaccato.		
Tappo.	*Tappa.*	A cork.
Sappa.	*Tſchappa.*	A hoe.
Fanà.	*Fenner.*	A light-houſe.
Cieuve.	*Dſhyava.*	It rains.
Bari.	*Baril.*	A ſmall caſk, or barrel.

Several Greek words have alſo been incorporated with the Genoeſe language, and a ſtill greater number with that of the Tartars, in which ſome traces of the Mongolian may be clearly diſtinguiſhed; but not the ſmalleſt veſtiges of the Gothic are perceptible in the different Tartar dialects: and the narrative of Busbek, relative to a remnant of the ancient Goths exiſting among

among the Crim-Tartars, could only have ariſen from the circumſtance of ſome German, Swediſh, and Livonian captives having been found in the Crimea. In like manner, Leſguis, Perſians, and Georgians may at preſent be diſcovered in that country. Thus alſo Germans, and natives of other regions, were among the late Kozaks of Saporogi, though without ever being conſidered as remnants of thoſe nations: nor is there throughout Crim-Tartary a ſingle name of a river, valley, mountain, or place, in which any Gothic word can be traced; whereas many Greek names are ſtill extant.

The food of the Crimean Tartars is rather artificial for ſo unpoliſhed a nation. When the higher claſſes give entertainments, numerous ſimple and made diſhes are ſet out, beſide a deſert of fruit. Among the moſt eſteemed delicacies are, forced meat-balls wrapped in green vine or ſorrel leaves*, and called Sarma; various fruits, as cucumbers, quinces, or apples, filled with minced meat, *Dolma;* ſtuffed cucumbers; diſhes of melons, *Badilſhan*, and *Hibiſcus eſculentus*, or *Bamia*, prepared in various ways with ſpices or ſaffron; all of which are ſerved up with rice; alſo *Pelaw*, or rice, boiled in meat-broth, till it becomes dry; fat mutton and lamb, both boiled and roaſted, &c. Colt's fleſh is likewiſe conſidered as a dainty; but horſe-fleſh is more commonly eaten by the Nagays, who are ſtill attached to their ancient cuſtom. The Tartars rarely kill horned cattle: mutton and goat's fleſh conſtitute the food of the common people, eſpecially in the country, together

* A diſh of vegetables, much uſed in the Crimea, is made with the large-leaved ſorrel, or *Aat-Kulak*, which is the Patience Dock, or *Rumex Patientia*; and alſo with the acetous garden ſorrel, that occaſionally grows on the mountains.

with

with preparations of milk and eggs; butter (which they churn and preſerve in the dry ſtomachs of oxen); a kind of pelaw, made either of dried or bruiſed unripe wheat, and which they call *Bulgur;* and, laſtly, their bread is generally compoſed of mixed grain*. Their ordinary beverage is made by triturating and diſſolving cheeſe in water; the former of which is called *Yaſma*, being prepared from coagulated milk, or *Yugurt*; but the faſhionable intoxicating drink is an ill-taſted and very ſtrong beer, or *Buſa*, brewed of ground millet. Many perſons alſo drink a ſpirituous liquor, *Arraki*, which the Tartar mountaineers diſtil from various kinds of fruit, particularly plums. It is alſo extracted from ſloes, dog-berries, elder-berries, and wild grapes, but never from the common cherry. They likewiſe boil the expreſſed juice of apples and pears into a kind of marmalade, *Bekmeſs*, of the conſiſtence of a ſyrup, or that of grapes into *Nardenk*, as it is called; the latter preparation is a favourite delicacy, and eagerly purchaſed by the Tartars of the Steppes: hence great quantities of it are imported in deal caſks from Anatolia, at a very cheap rate, for the purpoſe of converting it into brandy.

In conſequence of their temperate, ſimple, and careleſs mode of living; the warm clothing which they wear throughout the ſummer; and the little fatigue they undergo, the Tartars are ſubject to few diſeaſes; and are in general exempt from the ſevere intermittent and bilious remittent fevers, which commonly attack and prove fatal to foreigners and new ſettlers in

* *Tſhavdar* is the name given by the Tartars to a mixture of rye and wheat; and *Tſhalmalyk* is a compound of rye and barley, and occaſionally alſo of wheat; which kinds of grain they ſow in a mixed ſtate.

the

the Crimea. Many natives arrive at a vigorous old age; nor do any diſorders prevail among them, except the itch ariſing from ſloth or infection, and rheumatic complaints: the latter may be attributed to their apartments being too much expoſed to the current of air, having wooden lattices inſtead of windows, and large open chimnies. The chambers of the opulent are furniſhed with elevated divans; but thoſe of the common people are ſupplied with matraſſes and cuſhions, ſtuffed with cotton; and which are diſpoſed on the floor around the room, cloſe to the walls: they are uſed both as ſeats and couches, and are infeſted with fleas, bugs, and other vermin. The true leproſy, which the Ural-Kozaks term the Crimean Diſeaſe, never occurs in Crim-Tartary.

II.

ON THE PRESENT STATE OF THE CRIMEA, AND THE ECONOMICAL IMPROVEMENTS OF WHICH IT IS SUSCEPTIBLE.

From its geographical ſituation, climate, and ſoil, the peninſula of the Crimea is the only region of the Ruſſian empire, in which all the products of Italy and Greece, that are not cultivated in the northern provinces, might be introduced and multiplied; as ſeveral of them are already indigenous.

The culture of the vine, of ſilk, ſeſame, olive, and cotton, as well as of madder, baſtard-ſaffron, and other dyeing drugs, which are at preſent imported from the Baltic, Caſpian, and

Black Seas, at a heavy expence, and with conſtant diſadvantage to the balance of trade, might be encouraged, partly in this peninſula, partly on the banks of the Kuma and Terek; and would in time become ſufficiently productive to ſupply the conſumption of the empire, if thoſe diſtricts were peopled with a proper number of induſtrious ſettlers from Italy, Dalmatia, Perſia, Georgia, or Armenia. As the empire now enjoys the bleſſings of peace, with tolerable ſecurity on the Aſiatic ſide, manufactories of good woollen cloth might alſo be eſtabliſhed, were the breed of ſheep already exiſting here, eſpecially on the mountains, improved by croſſing with Spaniſh or Bulgarian rams. Farther, if Government would permit merchandize to paſs through the Ruſſian territory, on paying a tranſit duty, a very advantageous traffic might be carried on with Anatolia and Conſtantinople; as, during the preſent general* warfare, the maritime trade with Smyrna is entirely ſuſpended; and the manufactures of Europe and America are partly procured over land from Vienna, at a greater charge than they could poſſibly be furniſhed at home.

Independently of the deficient population in general, as well as of the want of ſubſtantial expert merchants, and induſtrious inhabitants, the greateſt obſtacle to the proſperity of the Crimea ariſes from the circumſtance, that the moſt beautiful mountain-tracts are chiefly occupied by villages, too ſmall in proportion to the extent of theſe lands, and inhabited by ſlothful Tartars; whoſe rural economy exhibits a paſſion for devaſtation peculiar to that people. Conſtantly diſaffected towards a

* The reader will recollect, that theſe remarks were written in, or before, the year 1800.—*Tranſl.*

Chriſtian

Chriſtian government, they never cultivate more than is indiſpenſably neceſſary for their food and clothing; placing their ſupreme happineſs in indolent repoſe. The women and children, who might be made uſeful in the culture of ſilk, ſit abſolutely inactive in their harems, and appear to be expreſsly trained to an idle life. They do not beſtow the leaſt attention on new objects of culture, or on clearing freſh plots of land; and ſcarcely do theſe inhabitants of the beautiful vallies keep in order, for their own enjoyment or profit, the gardens originally planted by the Greeks. The woods, with which Nature has clothed their mountains, they moſt wantonly deſtroy: in order to conſtruct miſerable carriages, the fineſt trees fall beneath the axe, though they generally employ but a ſmall part of the timber. For the naves of wheels, they fell the ſtrongeſt elms and aſh-trees, of which the ſolid root only is uſed; the moſt beautiful young oaks and beeches are cut down for ſpokes, axle-trees, and fire-wood; and the full grown trees for fellies. The wheels, however, when completed and brought to market, are ſo wretchedly manufactured, that they frequently fall to pieces within a month after they have been purchaſed. Every winter the Tartars burn, for their convenience, the fences of their fields and gardens; to replace which, the young ſhoots and coppices are unmercifully cut in the ſpring; while the windfalls, and wood uſeleſsly felled, lie rotting in the foreſts. This waſte of young timber, the ſale of which affords their chief maintenance, together with their numerous herds of goats, deſtroys all the young foreſts; ſo that large tracts of land, which were formerly covered with lofty trees, are now overgrown with uſeleſs buſhes and underwood.

Another circumſtance, that will impede the future proſperity of the Crimea, is the dividing and apportioning of the beſt crown-lands (ſince the Ruſſians took poſſeſſion of the country) to proprietors who are either abſentees, diſinclined to make new plantations and improvements; or, not having capitals adequate to ſuch enterprizes, are content with the trifling produce of the hay, wood, or tenths of the corn and ſheep. Thus, in the year 1796, the fine vallies on the ſouthern coaſt, which had, by a ſtanding order, been hitherto reſerved for ſettling foreign coloniſts, were diſtributed among unworthy proprietors of a ſimilar deſcription; whereas they might have been rendered uſeful to the empire, by more economical arrangements.

Laſtly, one of the greateſt impediments to the proſperity of this peninſula, conſiſts in the uncertainty and inſecurity of landed property; in conſequence of which thoſe proprietors, who have the power and inclination to embark in ſpeculations for the public good, have hitherto been deterred from carrying their deſigns into effect. For inſtance, ſince the Crimea has been in the poſſeſſion of Ruſſia, the lands that fell to the crown either as demeſnes of the Khans, or by confiſcation (including whole diſtricts), were granted as hereditary property, without ſpecifying whether ſuch diſtricts belonged to the proprietors with all their rents and profits, in the ſame manner as the farmed eſtates in Livonia; or, whether the Tartar inhabitants were to be conſidered as entirely independent on the landowners.—If we revert to ancient times, when the Tartar hordes invaded the Crimea, the conquerors ſeem to have exerciſed a complete feudal dominion over the old inhabitants. The lands

were

were diſtributed among the different chieftains; and the common ſoldiers were moſtly conſidered as farmers and tenants. About two hundred and eighty years ſince, under the reign of an ancient Shahin-ghirei Khan, regular limits were ſettled for the villages and occupiers of land in the plains, and proper documents were made out for thoſe who were entitled to ſuch grants. When the Turks aſſiſted Sultan Mahomet II. to conquer the fortreſs held by the Genoeſe, and expelled the latter from the Crimea, the former retained poſſeſſion of the whole mountainous tract on the ſouthern coaſt to the banks of the Belbek; and towards the Eaſt, as far as the dominion of the Genoeſe extended, together with the fortified towns of Balaklava, Kaffa, Kertſh, Yenikalé, Arabat, and Perekop; while the Tartars, who eſtabliſhed themſelves there, were obliged to pay a fixed rent, or *Uſhur*, of a tenth and other aſſeſſments, which were collected by Naſirs, and appropriated to the maintenance of the Janiſſaries. Formerly, on the recommendation of the Khan, Murſes of diſtinguiſhed merit obtained from the Sultan grants for certain diſtricts, to be enjoyed only during life, as a reward for their ſervices; by which tenure they received the tenths for their own emolument, and paid only a trifling quit-rent into the Turkiſh treaſury. But, as the Crimea, at the peace of Kutſhuk-Kainardſhee, was entirely exonerated from its dependency on the Ottoman empire, this territory on the ſouthern coaſt, together with all the revenues thence ariſing, reverted as a ſeigniorial domain to the laſt Shahin-ghirei Khan, who farmed out the rents; as appears by a Firman ſtill extant, and of which the following is a literal tranſlation:

" By

" By this Our Firman, be it known to all the Mahometan and other inhabitants of the undermentioned towns and villages; that we have let to farm, and aſſigned over, to the Director of our Mint, Abdul-Hamid-Aga, and to his coadjutors Hadſhi-Mekhmed, Mulla-Omer, and Mulla-Reſſul, the rents (*Uſhur*, that is the eighth part) belonging to us, and other revenues from whom or whatſoever they may be due; namely, from all crops of corn or garden-fruit, kitchen-gardens, including bee-hives and flax-fields, the ſaid Uſhur, or eighth part, fixed by law; alſo for every ſheep, two paras in money; and, for every head of horned cattle, not belonging to Mahometans, ſix paras. With regard to the rent of land, we command all perſons, without exception, to pay for every arable acre of ground, that can be ploughed in one day, three hundred and forty akſhas, computing one hundred and eighty to a Gruuſh*. Whoſoever ſhall act contrary to this order, which has for many years been obeyed, purſuant to the Mahometan regulations, ſhall be puniſhed without mercy, according to law. At the ſame time, we moſt earneſtly command the farmers of this branch of the revenue to collect theſe dues without fraud, and to keep a regiſter for entering the number of acres and the amount of the revenue in each town and village; diſtinguiſhing particularly what is paid by Mahometans from that contributed by others, and likewiſe ſtating the extent of the land poſſeſſed by each; ſuch accounts to be finally delivered to our Treaſury."

* *Gruuſh* is the name for the Turkiſh piaſter.

A Table

A TABLE, ſhewing the Names of thoſe Towns and Villages, which formerly belonged to the Turkiſh Sultan, but are at preſent let to farm.

I. In the *Kadilik*, or Juriſdiction, of Mankup.

The town of Mankup.

The following villages:

1. Beeyouk Lambat.
2. Kutſhuk Lambat.
3. Degirmen-Koi.
4. Bartinit.
5. Keeſiltaſh.
6. Gaſpoora.
7. Yourſuf.
8. Makhura.
9. Alupka.
10. Simeis.
11. Nikita.
12. Gurüs.
13. Magaratſh.
14. Dere-Koi.
15. Avutka.
16. Yalta.
17. Leemana.
18. Keekeneis.
19. Marſanda.
20. Kutſhuk-Koi.
21. Mükhalatka.
22. Müſhatka.
23. Phurus.
24. Gaitu.
25. Laſpa.
26. Kutſhuk-Muſkumya.
27. Varnutka.
28. Baidar.
29. Sakhtik.
30. Kalendee.
31. Iſkelé.
32. Savatka.
33. Uſundſhi.
34. Bagé.
35. Urkyouſta.
36. Booyouk-Muſkumya.
37. Ayee-Thodor.
38. Ouſen-Baſhtſhik.
39. Shulü.
40. Upu.
41. Kutſhka.
42. Marmara.

43. Tſhor-

43. Tſhorguna.
44. Elſſu.
45. Kmara.
46. Krailee.
47. Balyklava.
48. Kadi-Koi.
49. Kok-Agatſh.
50. Ak-Yar.
51. Inkermán.
52. Tſherkeſs-Kerman.
53. Kamüſhli.
54. Utſh-Kuyou.
55. Belbek.
56. Kabarta.
57. Otar.
58. Kara-Ilas.
59. Kotſha Sala.
60. Adym-Tſhokrak.
61. Karly.
62. Fetſh-Sala.
63. Yenee-Sala.
64. Yantſhu.
65. Airü-Kül.
66. Kokolos.
67. Markür.
68. Kok-Kyos.
69. Gavree.
70. Makhaldur.
71. Tatar Oſman.
72. Bgatyr.
73. Booyouk-Ouſenbach.
74. Kutſhuk-Ouſenbaſh.

The following ſixteen villages, together with the Jew's Town, were ſubſequently added to the Kadilik of Mankup by Shahin-ghirei Khan:

1. Iſtilä.
2. Kuvuſh.
3. Avtſhee-Koi.
4. Ulu-Sala.
5. Baga-Sala.
6. Matſhee-Sala.
7. Kermentſhik.
8. Laka.
9. Shurü.
10. Ulakly.
11. Menguſh.
12. Beſh Oevö.
13. Booyouk-Yenee-Koi.
14. Kutſhuk-Yenee-Koi.
15. Ayan.
16. Mairum.
17. Dſhüfut Kalé.

II. In the Kadilik of Sudak.

The town of Sudak.

The following villages:

75. Aluſhta.
76. Shuma.
77. Kürpek.
78. Demirdſhi.
79. Oulu-Ouſehen.
80. Kuru-Ouſehen.
81. Kutſhuk-Ouſehen.
82. Tuvak.
83. Uſkut.
84. Kapſokkor.
85. Arpat.
86. Shelen.
87. Varun.
88. Ayeeſeres.
89. Kutlak.
90. Tokluk.
91. Koos.
92. Taraktaſh.
93. Sovuk-Su.

III. In the Kadilik of Kaffa.

The villages of

94. Sary-giol, and
95. Seigmen-Dſhaila.

Although, in this part of the Crimea, the uſe and poſſeſſion of their gardens, fields, and meadow-lands, were ſecured to the Tartars, ſo that they had a right to ſell and bequeath them; yet the eſtabliſhed taxes were always to be paid; and the ground-rent, with which they were charged, independently of tenths, proves that they enjoyed the *uſufruct* only, and not the property, of the lands.

The Murſes, however, as well as ſome of the common Tartars, eſpecially thoſe inhabiting the plains, were inveſted with the landed property, acquired either by grant or purchaſe

from the ancient Khans, which they could freely ſell, and which was not ſubject to any aſſeſſment; but, as the Ruſſian law permits no commoner to hold landed eſtates, doubts frequently aroſe, whether ſuch poſſeſſions, belonging to the common Tartars, could be ſold or inherited by will. With regard to the application made on this ſubject by the Tartar courts in 1794, a deciſion was given by an Ukaſe of the Ruſſian Senate, dated on the 19th of October in the ſame year, enacting that commoners, who had a right to hold lands in the Crimea, might thenceforward occupy and inherit them, but could diſpoſe of them only to nobles. From this law, the ſimple yet avaricious Tartars, at the ſuggeſtions of thoſe who live by the litigations of others, drew the falſe inference, that all land on which a village ſtood, belonged in fee to the occupiers; and, as the inhabitants of ſome villages were beginning to ſell their eſtates, and attempted to ſettle on vacant crown-lands, it was ordered that no plebeian Tartar ſhould diſpoſe of them, without proof of his title and permiſſion from the deputed authority; at the ſame time enjoining, that no perſons ſhould remove from the places in which they were regiſtered to any other village.

Farther, all landed property in the Crimea belonged either to the Murſes, or to ſuch of the Tartar commonalty as could produce a deed of ſale, a grant (*Khodſhet* and *Firman*), or a certificate of inheritance, *Yuſta*, from the Kaſi-Eſker, or Cadi; or, it was a common paſture, *Merra*, poſſeſſed by the whole village; or it was a ſeigniorial domain of the Khan, *Mira;* or belonged to the Kalga-Sultan, *Kalgalyk;* or to the Nuraddin; or to the Shirin-bey; or, it was property which had fallen to the

the metſhets by donation and inheritance, termed *Vakuf*; or, laſtly, it was a demeſne of the Turkiſh Sultan, to whom it paid a ground-rent.

Notwithſtanding theſe well-known privileges, many clerks and interpreters (being diſcharged from offices in chancery by the abolition of the provincial government, which had exiſted in Crim-Tartary ſince its ſubjection in 1796) were induced, through the hope of maintaining and enriching themſelves by law-ſuits, to perſuade the Tartars, that they had a legal claim on all the common lands granted by the Crown; that they were under no obligation to pay any aſſeſſments to the proprietors; and that they were in lawful poſſeſſion of the whole diſtrict belonging to their villages. Hence aroſe a great number of expenſive ſuits, and all landed property at once loſt its value; becauſe every land-owner was thus deprived of the tenths and manorial ſervices he had hitherto received, and relinquiſhed all farther improvements. This ſtate of affairs ſtill continues; yet it may be hoped that the commiſſion inſtituted by order of the Court, under the preſidency of ſo upright, acute, and reſolute a military governor as General MICHELSON, will ſpeedily terminate ſuch abuſes, and reſtore every perſon to the peaceable enjoyment of his rights.

The chief difficulty in theſe law-ſuits, and which formerly gave birth to innumerable evils, aroſe from the implicit credit given in the courts, and in ſurveying land (ſince the Crimea has been in the poſſeſſion of Ruſſia), to the parole evidence of the Tartars, when written documents could not be produced. This evidence was given upon a ſlight oath, ſworn on the Koran in a metſhet; and it has been proved in various in-

ſtances, by the confeſſion of ſeveral Tartars, and even of prieſts, that the Mahometan clergy had ſecretly inſtructed the common people of their religion, that ſuch oath was not binding, when it concerned a *Gyowr*, or infidel, and might therefore be violated with impunity, according to prevailing circumſtances. The people had alſo been taught various evaſions, by which they entirely abſtracted and disjoined in their minds the act of kiſſing the Koran, at the concluſion of the oath, from the oath itſelf. But a more ſolemn form of ſwearing, termed *Dallak*, is at preſent, on important occaſions, adopted even in Turkey, by which the perſon taking ſuch oath binds himſelf, in caſe of perjury, to renounce his wife; ſo that a Tartar, who has any conjugal affection, will not eaſily forſwear himſelf, as the marriage is thus inſtantly diſſolved. The introduction of this form was, for a long time, ſtrenuouſly oppoſed by the preſent Mufti, under various pretexts, till at length it was eſtabliſhed by the active intervention of the worthy military Governor above named. But even the Dallak has, in many inſtances, been violated; and the Mahometan prieſthood have apparently ſupplied the common people with ſalvoes, or diſpenſations: it would therefore, perhaps, be more adviſable (in cauſes relating to the demeſnes of the Crown, or the property of private individuals) to admit only written evidence. The prieſts, however, have lately begun to fabricate ſuch proofs for the advantage of the Murſes, though the forgery has ſometimes been detected.

The ſolemn oath, laſt alluded to, deſerves particular notice; becauſe it is connected with the ſingular laws of the Mahometans

hometans reſpecting divorces. Its tenor, according to a literal tranſlation, is as follows:

" I believe in the unity of God, and in his angels, as alſo in the four holy books, Intſhil, Tevrat, Sebur, and Koran*, which God has given us by his meſſengers from heaven; likewiſe in predeſtination, namely, that whatever happens on earth, is written in heaven; and, farther, in the reſurrection of the dead, in the aſſurance of which I ſay,

" There is only one God, and Mahomet is His Prophet!

" There is only one God, and Mahomet is His Prophet!

" There is only one God, and Mahomet is His Prophet!

" We Muſſelmen, true believers in the four holy books that are ſent down from heaven, of which we have no doubt, and upon which we ſwear, atteſt by our ſignature at the foot hereof, that, in conformity to our oath, we will ſpeak the ſimple truth in anſwer to all queſtions which ſhall be propoſed unto us concerning the lands and boundaries in diſpute, and that we will prouounce no falſehood; that no ſecret motive ſhall induce us to ſay any thing that is untrue, or to conceal any circumſtance through the fear of injuring any individual, through reſpect of perſons, friendſhip, conſanguinity, or intereſt. We will therefore declare upon our oath and conſcience, to whom the land in queſtion formerly belonged; whether it has been ſold, and to whom; and whether the preſent occupiers hold it by right or otherwiſe. Should we, in the leaſt degree, ſay what is falſe on theſe points, may we fall under the diſpleaſure of our Emperor, according to our deſerts;

* Theſe books are the Old Teſtament, the New Teſtament, the Pſalms of David, and the Koran.

at

at the day of judgment, may the curſe and condemnation of our Prophet Mahomet be our portion, as falſe witneſſes, and perjurers; and may we ſuffer all the torments reſerved for thoſe who have proved unfaithful to the laws of their country. In addition to all this, we farther declare, that, in caſe of perjury, our lawful wives ſhall be ſeparated from us for three (or nine) *Dallaks**. In confirmation of all which we kiſs the holy Koran from the bottom of our hearts and ſouls. Amen! Amen! Amen!"

For the illuſtration of this laſt clauſe, it muſt be obſerved, that the Mahometans have two kinds or degrees of divorces: the firſt is a mere ſeparation, ſuch as frequently takes place among married people, when the huſband in anger utters to his wife the words, *Boſhol bendenn*, ſignifying, "Be free from me." In this caſe, the wife muſt immediately conceal herſelf, and never be ſeen in her huſband's preſence without her veil; or, ſhe muſt quit the houſe, and return to her parents. In general, the huſband again receives her, when his anger ſubſides; and, at length, an Imam or a Mullah is called in, and the *Nikiakh*, or marriage-contract, is renewed in his preſence; on which occaſion the Mullah repeats a ſhort prayer, as is uſual at all regular nuptials. The *Nikiakh* is a written promiſe, by virtue of which the huſband enters into an engagement with his wife, that, in caſe of ſeparation or of his deceaſe, he will direct a certain ſum of money to be paid in

* From all the information I could obtain, *Dallak*, in the Tartar tongue, denotes the ſpleen of a ſlaughtered animal. But I could not learn how this word became ſo important in regard to divorces. In the Arabic language, *Dalach* ſignifies the untying of a knot.

addition

addition to her dower. After this ceremony, the huſband may again cohabit with his wife.

The other kind of divorce is attended with ſtill greater difficulty, when the huſband is abſolved from his wife, either in conſequence of the above mentioned falſe oath, or, through rage, uttering the words *Boſhol bendenn ütſh Dallak.* In this caſe, ſhould he afterwards wiſh his wife to return, the parties muſt wait three full months, in order to aſcertain that ſhe is not pregnant. At the expiration of ſuch term, ſhe muſt be united to, and ſleep with, another man, who has the option of keeping her, or ſending her back the next day, on paying the promiſed *Nikiakh;* after which ſhe muſt wait three additional months, before ſhe can return to her former huſband, who is obliged to renew the marriage contract. It is by theſe formalities, that the above-mentioned oath is rendered ſo ſolemn and important. The Mahometan law requires every widow, or divorced wife, of that religion, to abſtain from marrying again during three months; and, to prevent all fraud or evaſion, the Mufti has ordered, that this period be computed from the day of the huſband's deceaſe, or of the ſeparation.

The law of Mahomet, however, permits Muſſelmen to marry four wives, and if a man wiſhes for a fifth, he muſt previouſly divorce one of the others; but he may cohabit with all his female ſlaves without marrying them. In ſuch caſe, they are called *Odalik*, or companions, not *Nikioly*, or wives. All the children of female ſlaves have a right to inherit the property of their father, as well as thoſe born in wedlock.

III. ON

III.

ON THE STATE OF ECONOMY AND AGRICULTURE IN CRIM-TARTARY, TOGETHER WITH AN ACCOUNT OF THOSE VEGETABLE PRODUCTIONS WHICH ARE USED FOR FOOD.

Before I enter on a particular deſcription of Tartar economy, it will be neceſſary to premiſe a few words, reſpecting the climate and nature of the ſoil in that peninſula.

It is a common remark of the Tartars that, ſince the Ruſſians took poſſeſſion of their country, the winters in Taurida have become more ſevere, and of longer duration. This opinion probably originated from the hard winters which happened ſoon after the political event juſt alluded to; and among which that of 1786-7 was particularly long and rigorous. But it may alſo be true, that the deſtruction of the hedges, gardens, and woods, along the banks of the brooks and in the vallies, partly by the numerous armies, and partly by the Tartars themſelves, has afforded a free acceſs to the cold Eaſt and North-eaſt winds; and that both on this account, and in conſequence of the decay of agriculture, as well as of the diminiſhed number of fires occaſioned by the emigration of the Tartars*, the climate has actually become colder.

The ſeaſons in this country are, upon the whole, very unequal. I have known a winter, that of 1795-6, when, ſo

* In large, expoſed cities, for inſtance St. Peterſburg, the thermometer always ſtands, in winter, two degrees lower in the northern parts of the town, where the north wind enters with all its force, than in the ſouthern quarter, where that wind paſſes over the houſes. It is likewiſe colder on the broad quays of the Neva, than in the more confined ſtreets bordering on its banks.

early

early as the 6th of February, all the ſpring-flowers were every where ſeen in full bloom, ſuch as the *Viola odorata*, *Tuſſilago*, *Crocus*, *Colchicum vernum*, *Hyacinthus racemoſus*, ſeveral kinds of *Ornithogalum*, *Cyclamen*, *Arabis alpina*, and *Fumaria*. During the remainder of that month, they were buried under a deep ſnow, though not a ſingle day was marked by ſevere froſt. On the other hand, the rigorous winters of 1798-9, and of 1799-1800, continued from the end of October till April, with various degrees of cold, accompanied by violent hurricanes from the North, ſo as frequently to cauſe the mercury to ſink eighteen degrees below the freezing point; which was likewiſe the loweſt ſtate of the barometer in 1787. In the laſt of theſe winters, the froſt was ſo intenſe, during the moſt boiſterous North winds, that not only the whole Sea of Azof, together with the Boſphorus, but alſo great part of the bay of Kaffa, and ſeveral creeks of the Black Sea, were covered with ice, ſufficiently ſtrong to ſupport the weight of perſons croſſing both on foot and on horſeback. Such inclement winters, as well as copious falls of ſnow, are not very common; and the latter ſeldom remains on the ground throughout that ſeaſon. The winds are very variable, and bring rain from the Weſt and South-weſt; mild air and frequently miſts from the South; ſerene dry weather from the Eaſt; and cold from the North. Beſides, the barometer is ſubject to ſudden changes, and the climate is ſo unſettled, that it often varies ſix or eight times in twenty-four hours. Fine weather, however, and heavy ſtorms, which laſt are but too common, generally follow or precede the changes of the moon.

The ſummers in the Crimea are alſo very irregular. Too frequently droughts prevail for ſeveral ſucceſſive years, even from the beginning of ſpring; ſo that the wells and brooks are dried up; and it is no uncommon circumſtance to ſee the thermometer ſtand, in the ſhade, at twenty-nine, thirty, or even thirty-one degrees of Reaumur. On the ſame day, however, it often falls ten or twelve degrees, and there is generally a current of air, which moderates the heat, eſpecially in the mountainous vallies, that are expoſed towards the ſea, and along the banks of rivers. Here a gentle breeze commonly blows from the ſea, after ten o'clock in the forenoon, till the approach of evening, when it ceaſes; and, after ſunſet, a cool wind from the mountains prevails until morning, ſo that the nights are moſtly cold, and the winds piercing. Cool and rainy ſummers are uncommon; though they occaſionally happen after ſevere winters; when, on the one hand, the ſnow remaining long upon the Alpine heights, and, on the other, the drifted ice of the Sea of Azof, produce a cold atmoſphere till the end of May, and cauſe a conſtant current of cool air. Such was the caſe in 1799, when the ſnow lay on the Alpine flats, or Yailas, till the month of May: the latter part, however, of that ſummer, was dry and very hot, whereas the ſame ſeaſon in 1800 was remarkably rainy. In ordinary ſummers, the barometer ſeldom varies, and the inhabitants may generally expect fine clear days:—thunder-ſtorms rarely occur, and are attracted by the high mountains; but are tremendous where they happen, and are not unfrequently accompanied by hail-ſtones and deſtructive water-ſpouts. Theſe tempeſts, nevertheleſs, ſpeedily ſubſide; as in the ſummer and ſpring, the rainy

rainy weather ſeldom continues longer than twelve or twenty-four hours.

No ſeaſon of the year is more ſalubrious, or more pleaſant in the Crimea, than the ſpring, which generally continues from March till the end of May. For, at that time, not only are the ſenſes gratified with the ſweeteſt perfumes wafted from the gardens and woods along the banks of rivers; the laſt of which exhibit an infinite variety of wild fruit-trees, white and red roſes, water-elder, *Lantana*, wild vines, *Vitalba*, and jaſmine, interſperſed; but likewiſe each hill and declivity, around the champaign country, is alternately diverſified with the beautiful colours of the flowers that every where clothe the earth; and ſometimes one, ſometimes another ſpecies, prevailing on different hills, according to their ſituation, aſpect, or ſoil, vary and enrich the ſcene. Thus, at a diſtance, whole ſides of mountains, and extenſive tracts, covered with red or blue, purple or yellow tints, relieved by a back-ground of ſhaded green-ſward, delight the eye with the moſt faſcinating proſpects. The fragrance ariſing from this profuſion of flowers, eſpecially march-violets, and the bloſſoms of trees, together with the grateful odours of the aromatic herbs, embalm the ſurrounding atmoſphere.

The weather is generally ſettled; the heat is moderate and refreſhing; the nights are cool and ſerene: numerous flocks of ſheep are ſeen moving in every direction; together with village flocks ſcattered over the paſtures: in ſhort, it is impoſſible to behold a more delightful country than Crim-Tartary, throughout the vernal ſeaſon. Few ſummers however paſs, in which the verdure on the hills is not parched up; till, at length, the autumnal rains cauſe the herbage again to

vegetate for winter-paſture. Farther, the ſpring is uſually unattended with rain, eſpecially during the prevalence of violent and drying eaſt-winds; and, unleſs a conſiderable fall of rain happens in April and May, an unproductive harveſt but too frequently follows.

The moſt unhealthy ſeaſon in the Crimea is the autumn, when bilious fevers prevail to a great extent: they are ſometimes intermittent, ſometimes remittent, and often prove fatal; or, if improperly treated by inattention to diet, the patient is ſubject to relapſes, and the febrile attacks terminate in chronical diſorders. Theſe maladies muſt be attributed chiefly to the ſuperabundance of bile, ſecreted during the hot ſeaſon, as well as to the cold nights and piercing winds, which commence in July, and to the almoſt inevitable effect of cold on the body, after hot days. With the exception of ſuch fevers, and of the itch (ſo common among the lazy Tartars), this country might be conſidered as one of the moſt ſalubrious in the world. The autumns vary greatly from each other with regard to rain and dew; the latter of which is extremely rare in ſummer: theſe ſeaſons, however, ſo far nearly agree, that ſeveral cold days occur in the middle of October, ſometimes ſo early as September, and are generally accompanied with night-froſts: rime, or ſnow, alſo appears on the high mountains, and ſometimes proves injurious to the vintage; but, afterwards, the weather again becomes pleaſant, and frequently continues mild till December and January.

The Tartars divide the ſeaſons ſomewhat differently from the mode commonly adopted. Their ſpring, or *Bahaar*, commences with the *Kedreles*, or Saint George's day, 23d of April O. S.

O. S., (which is a ſolemn feſtival among the Greeks,) and continues ſixty days, till the 22d of June. At the expiration of that time begins their *Tſhilla*, or great ſummer, which terminates on the firſt of Auguſt, being a period of forty days. The month of Auguſt, till the 25th, is in their dialect termed *Agoſtos*, and is not included in any of the ſeaſons. Their autumn, or *Ghus*, extends from the 26th day of the ſame month to the 26th of October, comprehending ſixty-one days. This day is the other grand feſtival of the Greeks, called alſo *Kedreles*, and ſacred to St. Demetrius; and, the harveſt being then concluded, the fruits collected, and the vintage completed, the payment of all rents and debts is uſually ſtipulated to be made from and after the 26th of October. The ſucceeding thirty-ſix days are termed the *fore-winter;* and the next ſixty-five days, from the 1ſt of December till the 4th of February, conſtitute the principal winter, or *Kyſh-Tſhilla.* The remaining twenty-five days of the latter month are called *Gudſhuk-ai;* and the fifty-three days, from the 1ſt of March to the 23d of April, or *Kedreles*, likewiſe form no part of any ſeaſon, but are diſtinguiſhed by the name of *Mart.* In this interval, according to the meteorological obſervations of the Tartars, which I have on the whole found tolerably accurate, there occur three cold periods, which they call the winter of old women; the ſtarling's winter, or *Berdül-adſhür*, continuing ſeven or eight days; and, laſtly, the *Oepöpö*, or Hoopoe's winter.

It is remarkable that the Tartars retain the Mongolian* æra of twelve years, and give each of the twelve nearly the ſame

* See Part II. of my "*Collections relative to the Mongolian Tribes,*" publiſhed in the German language.

names;

names; ſome of which are tranſlated into their language, while others are totally miſunderſtood. The Tartar names of ſuch years are as follow:

Sitſhan ſignifying in both languages a mouſe.

Sſeehir, a cow; the *Ukir* of the Mongoles.

Barts, which in the latter tongue denotes a tiger, the Tartars derive from a ſmall grey inſect, not exceeding the ſize of a grain of wheat; and which is found beneath ſtones.

Towſhan, a hare; the *Tuſhkon* of the Mongoles.

Ulu, (in the Mongolian language *Lu*, a dragon,) the Tartars appropriate to a ſmall inſect; with which, however, they are unacquainted.

Ilan, a ſerpent; the *Mogoi* of the Mongolians.

Yeelkö, a ſtud; in the dialect of the latter *Morin*, a horſe.

Koyun, a ſheep; the *Khoin* of the Mongoles.

Metſhin, the Mongolian expreſſion for an ape, is by the Tartars conſidered as being the red and black inſect, or bug, which is ſeen creeping on walls.

Touk, a hen; the *Takia* of the Mongoles.

Köpek, a dog; in the Mongolian dialect *Nokhoi*.

Khynſir, a hog, in the ſame language *Gakhai*.

This æra, which recommenced in 1792, and will terminate with the year 1803, ſerves chiefly for predicting the nature and fertility of future years; but, in ſuch conjectures, the Tartars are generally miſtaken, as far as I could judge during my reſidence among them. I could not, however, aſcertain whether their inferences are founded on meteorological obſervations, made during a former period of twelve years.

The

The Tartars were originally a wandering people; and thoſe dwelling in the Crimea became huſbandmen, in conſequence of the narrow limits of their country, the increaſe of population, and probably from the example of the Greeks, Armenians, and Genoeſe: it is certain that they are indebted to their predeceſſors and fellow-inhabitants for the benefits of rural economy. Their mode of building houſes, and of encloſing their gardens and fields with dry walls erected of looſe rough-ſtones, their heavy plough, and their carriages in general, (as well the two-wheeled *araba* as the heavy four-wheeled *Madſhars*,) were doubtleſs borrowed from the Greeks; who alſo planted and grafted moſt of the orchards, olive, fig, and pomegranate trees in the mountainous vallies: as, on the contrary, the plantation of the vineyards ſhould rather be attributed to the Genoeſe.

The plough uſed by the Tartars is of the ſame conſtruction as the heavy plough of Little Ruſſia, having two wheels with a broad ſhare; and being of a ſtrong, though clumſy, manufacture. To this implement, two, three, and for new land, four pair of oxen are occaſionally yoked, according to the nature of the ſoil; in which caſe two or three boys are required as drivers, beſide the man who guides the plough. Hence ſeveral little farmers generally join in ploughing their lands, eſpecially on the mountains, where cattle are leſs numerous; as many huſbandmen have but one pair of oxen. The Tartar mountaineers, who poſſeſs only ſmall tracts of arable land, manure it every third or fourth year; but, in the open plains, there is always a ſufficiency of new ground, which is generally ſown the firſt year with millet; the ſecond, with wheat; and the third with rye or barley. After ſuch rotation

rotation the land is, according to its nature, ſuffered to lie fallow; in conſequence of which it becomes overgrown with tall, coarſe, prickly weeds (*burian*), with thiſtles, *Mercurialis annua*, *Caucalis daucoides* and *latifolia*, &c.; ſo that a long period elapſes before it again becomes fit for paſture. The Tartars have no other method of harrowing, than by faſtening long thorny branches between two croſs bars of wood, which are weighted with a few ſtones; and the whole is drawn over the ſoil by oxen. Hence the ſeed is very unequally diſtributed, and lies thick in the furrows. This careleſs mode of tillage is undoubtedly a principal cauſe of the frequent failure of crops; as otherwiſe it would be inconceivable, how ſuch large quantities of corn could, when the coaſt was inhabited by Greeks *, have been exported to Greece; eſpecially if it be conſidered, that the whole ſoil was then newly broken up; and that the Crimea received a greater portion of humidity from the air, before the foreſts on the mountainous declivities were deſtroyed. Nevertheleſs it is a well-known fact, that, previouſly to the late unfavourable ſeaſons, the Tartars always kept a ſtore of corn in their caves, ſufficient for the conſumption of ſeveral years. In theſe pits, which are excavated in a dry, clayey, and ſtony ſoil, hardened by fire, the corn is for a long time preſerved, and effectually

* Strabo, Lib. VII. writes as follows:—*At Cherroneſi (ſolum), exceptis montanis quæ juxta mare ſunt, et uberis glebæ, ac præcipue frumentum copioſe proferunt; nam ager ibi, quocunque foſſore ſciſſus, trigecuplum reddit. Tributi nomine ſolvebant Mithridati CXXC millia medimnorum et talenta argenti CC, cum Aſianis locis quæ ſunt apud Syndicen. Atque ex his locis olim in Græciam frumentum deportabatur, ſicut et ſalſamenta e Mæotide; et ferunt Leuconem Theodoſiâ miſiſſe Athenienſibus medimnos CCCI ↃↃↃ IↃↃↃ. Iidem Cherroneſii peculiari nomine Agricolæ* (Γεωργοὶ) *dicebantur, quod qui ſuprà eos habitant Numidæ* (*Nomades*) *eſſent.*

ſecured

ſecured from the depredations of vermin. The Crimea, indeed, has ever been conſidered as the granary of Conſtantinople; an opinion, which muſt in a great meaſure be attributed to the conſtant importation of corn from Little Ruſſia, by carriers who take ſalt in exchange for ſuch commodity.

The ſoil of Crim-Tartary is, in general, a heavy marl: it conſiſts, in the plains, of a ſandy white clay, and partly of a black friable earth: in the vicinity of mountains, where the ſtrata of calcareous marl riſe to view, it is interſperſed with chalk and limeſtone; but, to the eaſtward from the Karaſſu, and over the whole peninſula of the Boſphorus, it is black and clayey; while that of the mountains is mingled with gravel and round ſtones; being very fertile in every ſituation, unleſs there be a deficiency of moiſture. In this ſtony ſoil, wheat thrives admirably, and it is likewiſe uncommonly favourable to the culture of the vine: the great number of ſnails, appearing on the ſurface of the fields, ſupplies the land with a kind of marly manure.

The ſpecies of grain, which the Tartars principally cultivate, are the following:

1. Winter-wheat, or *Kuſluk-Bohdai:* it is ſown in Auguſt, as ſoon as there is ſufficient rain to admit of ploughing; and the early ſowing is generally the moſt productive. It ripens in the middle of July; and, in fruitful years, yields from eight to ten, though rarely from fifteen to twenty fold.
2. Summer-wheat (*Yaſlyk-Bohdai*, or *Kyſiltſha*) is committed to the ground in March, as ſoon as the weather permits; but it is leſs to be depended on than winter-

wheat, on account of the frequent droughts occurring in the ſpring.

3. *Arnaut*, or *Kaidur-Bohdai*, Greek, or Arnaut-wheat. Two varieties are ſown together, one having long reddiſh ears, with ſhort beards; the grains of which are diſpoſed at greater diſtances, and which, in the language of Little Ruſſia, is called *Kraſnokoloſka:* the other has thick, heavy, and very productive ears, partly yellowiſh, partly black; whence it is termed *Tſhernokoloſka*, and by the Tartars *Kara-Kiltſhik*. This ſpecies of wheat bears a large, beautiful, bright yellow grain, ſomewhat tranſparent, and is, in preference to every other, exported to Turkey and Italy. It yields a yellowiſh very ſavoury flour, that is in much requeſt for making macaroni: it requires, however, a very rich ſoil. Hence the variety laſt alluded to, is ſown by the Nagays only on plains, in the vicinity of the Sivaſh, and on the coaſts of the Sea of Azof, eſpecially in the neighbourhood of Perekop. Ears are ſometimes found among it, which completely reſemble thoſe of the many-eared wheat. Of this grain, the Tartars chiefly prepare their *Buldur*, above deſcribed.

4. Spelt, or *Kapli*, is only ſown about Kaffa, and in the peninſula of Kertſh, though not in conſiderable quantities.

5. Winter-rye, or *Kuſluk-Aryſh*, is depoſited in the ſoil as ſoon as poſſible in autumn; ripens in the beginning of July, but ſtill earlier in mountainous ſituations; and yields more abundant crops than wheat. The Tartars ſow ſmaller quantities of pure rye than of wheat; as, for

for their own conſumption, they prefer mixtures of rye and wheat, termed *Tſhavdar;* and of rye and barley, called *Tſhalmalyk;* which are thraſhed, and uſed, in a mixed ſtate. For the market, wheat and rye are ſeparately cultivated; but, as various kinds of grain are commonly intermingled on the thraſhing-floor, the corn at length becomes too impure; and new grain is purchaſed for ſeed. After a ſucceſſion of mixed crops, the wheat gains the aſcendancy; which muſt probably be attributed to the unequal periods of ripening; as a larger number of grains of rye are ſhed in conſequence of its earlier maturity. Hence ſome huſbandmen have been led to ſuppoſe, that the rye is tranſmuted into wheat. Pure rye is alſo occaſionally ſown in the ſame field, which in the preceding year was appropriated to wheat, but had not ſprung up on account of the drought: thus, the former ſeed appears, together with the wheat, nearly in equal proportions. From this accident probably originated the Tartar cuſtom of ſowing the mixtures already ſpecified.

6. Summer-rye, or *Yaſlyk-Aryſh*, is ſown at as early a period in March as is practicable: it affords very indifferent crops in dry years; and, even in favourable ſeaſons, yields leſs than winter-rye; for which reaſon it is but little cultivated.

7. Common winter-barley, or *Kuſluk-Arpà*, is ſown at the ſame time with other winter-corn, in light ſoils, and ripens in June. It is more productive than rye and wheat; though it does not eventually afford an equal

number of grains. In ſome diſtricts, eſpecially in hilly regions, it ſooner attains to maturity, if ſown early in the ſpring; but, in ſuch caſe, it is leſs productive.

8. Two-rowed, or ſummer-barley, (*Yaſlyk-Arpà*) is chiefly ſown in plains, in the commencement of ſpring, after a crop of wheat, and yields from ten to twenty fold.

9. Oats, or *Yulav*, are cultivated in the Crimea, only on the plains bordering on the Sivaſh and the Sea of Azof. It affords indifferent crops; as the grains are generally hollow, or very light.

10. Maize, (*Miſſir Bohdai*, or Egyptian wheat; in the Moldavian dialect, *Kukuruſſa*,) is ſown in rows, but only in kitchen-gardens, and on cucumber and melon-fields. The Tartars partly dreſs it before it is ripe, and partly ſtore it for winter food.

11. Millet, or *Tari*, is committed to the ground in conſiderable quantities in April or May, as ſoon as the vernal ſhowers favour its vegetation:—it is uſed both as food, and alſo for brewing their intoxicating *Buſa*. Such grain is always raiſed on new land, which is afterwards laid down for wheat: frequently, however, it does not ſucceed, on account of the droughts prevailing in the ſummer, or does not ſpring up till autumn; ſo that it cannot ſufficiently ripen. The Tartars cultivate the red and yellow, but not the black variety of this grain. The Crimean millet is generally mingled with a large proportion of foxtail-graſs; it is reaped in September and October, and yields upwards of one hundred

hundred fold.—Some farmers employ it as fodder for horſes.

12. Foxtail-graſs, or *Kunakai-Tari*, is frequently ſown with millet, as alſo ſeparately; and is moſtly conſumed in brewing *Buſa*.

13. Bucharian millet, or *Nar-Tari;* of which two varieties, the *Holcus Sorghum* and *Saccharatus*, are chiefly cultivated in gardens, and ſerve as food, both for man and poultry. From the ſtraw of the latter plant are manufactured elegant bruſhes for cleaning clothes, and brooms for ſweeping apartments.

14. Chick-peaſe, or *Nout*, are ſparingly ſown in April, in whole fields, and ripen about the end of Auguſt. They yield about thirty fold; but, in general, the Crimean peaſe do not become ſoft by boiling; and, in this reſpect, differ from thoſe of Spain.

15. Flax, or *Uſkiülii*, is committed to the ground in March, and reaped in June: it is raiſed in the mountainous tracts, and along the ſouthern coaſts of the Crimea, in irrigated fields. The flax of this country is much eſteemed, on account of its fineneſs, and the length of its fibres. The Tartars of the Steppes alſo cultivate it, though ſeldom with ſucceſs; and their produce is of an inferior quality.

16. Tobacco, or *Tütün*, is ſown in hilly ſituations in April, and tranſplanted in May into a rich garden ſoil, between water-furrows. In autumn, the young leaves are gradually removed, dried in the ſhade, and buried beneath hay-ricks: here they turn to a browniſh-yellow colour,

ſimilar

ſimilar to that of Turkiſh leaf-tobacco, to which they are nearly equal in value. The only ſpecies cultivated in Crim-Tartary is the round-leaved tobacco, or *Nicotiana paniculata*.

Seſame was likewiſe propagated with ſucceſs in the Crimea; and this plant, together with cotton, might eaſily be raiſed. The culture of rice, which was till lately purſued in the low lands along the banks of the Katſha and Belbek, is now juſtly prohibited by the Ruſſian Government, on account of its unwholeſome tendency.

I now proceed to treat of the Tartar method of gardening. In the plains, where orchards occur, the principal objects of cultivation are cucumbers, melons, water-melons, and cabbages; which are ſown or planted in irrigated fields, called *Boſhtany*. The annual plants chiefly reared are as follow:

1. Water-melons, or *Karpus*, are depoſited in the ſoil in April, and ripen from the end of July till autumn; but they are neither ſo large nor well-flavoured as thoſe raiſed in the lower environs of the Dniepr. The beſt grow at Kilſe-Metſhet, a village in the neighbourhood of Karaſſubaſar.
2. Melons, or *Kown*; a fruit of which the Tartars have never reared the beſt ſorts. The moſt common kind, till lately, was a large oblong melon, with an inſipid, white, or greeniſh pulp. At preſent, however, the culture of this plant is improved by my introduction of the ſeeds of foreign cantalupes and Bucharian melons.
3. Cucumbers, or *Chiyar*; of which there is a remarkably large Turkiſh variety in the Crimea; but, for economical

mical uſes, it is inferior to the ſmall, green, Ruſſian cucumbers, that are now likewiſe cultivated to a conſiderable extent. The former are gathered in May, though ſown only in April: they are filled with meat and rice, and, when thus prepared, are very excellent; but, for pickling, they are by no means equal to the ſmaller kind.

4. Large quantities of gourds, or *Kabak*, of different varieties, are raiſed in every part of the Crimea. There are round, white, and yellow ſorts; one of them is very large, rather oblong, growing chiefly on the ſouthern coaſt, and is called the *Honey-gourd*. The variety called *Kubanka*, and the gourd in the ſhape of a ſauſage, (*Dolma*), which is uſually ſtuffed with meat, are alſo occaſionally propagated.

5. The bottle-gourd, or *Savut-Kabak*, is very ſcarce.

6. The egg-fruit, or *Melongena*, of the oblong kind termed *Patildſhan*, is cultivated in gardens; being much eſteemed as an invigorating delicacy, eſpecially when filled with meat.

7. The *Hibiſcus eſculentus*, or *Bamia*, is, like the preceding vegetable, ſown in April, and attains to perfection in July. This fruit was but lately imported from Turkey, and is ſometimes cultivated on account of its ſuppoſed aphrodiſiacal virtues. Its ſquare capſules, reſembling huſks, are either eaten in a freſh and unripe ſtate, or are dried for winter-uſe, and ſtuffed with meat. On account of their clammy juice, it is neceſſary to ſcald them

them in boiling water, before they can be dreſſed for the table.

8. The Jeruſalem artichoke, or *Helianthus tuberoſus* (*Gerr-Armud*,) is found in a few gardens; and has long been known in this country: on the other hand, potatoes, or *Gerr-Alma*, were firſt introduced by the Ruſſians. Both ſucceed uncommonly well, and alike reſiſt the winter in open-fields. The former bears annual flowers.

9. White cabbage, or *Kapuſta*, as it is alſo called in Ruſſia, is reared to a conſiderable extent in well-manured and copiouſly irrigated fields. It is eaſy to obtain very large and firm heads; but the quantity of water employed in their culture renders them inſipid. Thoſe produced in the vicinity of Eſki-Yourt, below Bakhtſhiſarai, are watered and nouriſhed by the Dſhuruk-ſu, which is impregnated with all the filth of the town; they are celebrated on account of their enormous ſize, and cannot be compared with the cabbages raiſed in any other part of the world. The Tartars fondly reliſh Sauer-Kraut; but, not underſtanding how to prepare it, they generally purchaſe it from the Ruſſians.

10. Onions, or *Arpaſhik-Sogan*, are here very large and uncommonly numerous. Many Tartars derive their whole ſupport from the culture of theſe roots, which are tranſplanted in March.

11. Garlic, or *Sarmuſſak*, is not reared to any conſiderable extent.

12. Leeks, or *Praſs*, are chiefly cultivated by the Greeks and Ruſſians, in their kitchen-gardens.

13. Bro-

13. Brocoli, or *Tſhokundur*, is raiſed in large quantities by the Tartars and Ruſſians.
14. Celery, or *Kerevis*, and
15. Parſley, (*Mardonos*), are brought to market only by the Greek and Ruſſian coloniſts.
16. Carrots, or *Chavutſh*, are almoſt generally cultivated: the roots are ſeldom red, but of a pale yellow colour; and, in marly ſoils, after a few generations, they become perfectly white. The ſame effect takes place in
17. The red beet, or *Utſhkundur*, of which the Tartars have a very large and uncommonly ſweet variety, forming bulbous roots not unlike the round turnip; and from which ſugar might probably be extracted with advantage.

The other culinary vegetables, ſold in the public markets, are chiefly ſupplied by the Greek and Moldavian coloniſts of Manguſh; and Karaſſubaſar is amply furniſhed with different vegetable productions, as numerous Greeks, Armenians, and Italians devote themſelves to gardening in its vicinity. M. SINTSHEFSKY, Surgeon to the Staff, an active botaniſt, has already made ſucceſsful experiments in planting the Siberian rhubarb. In Taurida, however, no perſon has hitherto attempted to cultivate cotton, ſaffron, and madder, upon a large ſcale, though theſe objects of rural economy might be purſued with great benefit; nay, with ſome attention, even the ſugar-cane would reſiſt the winter in the warm ſouthern vallies extending from Alupka to Yalta.

In Crim-Tartary, the grain is not thraſhed with flails, but trodden out by horſes, as repreſented in Vignette 13. For

this purpoſe, a ſufficiently large circle is cleared on an open elevated place, which is levelled; after carefully removing the ſtones, it is ſprinkled with water, and covered with ſhort ſtraw. A poſt is then fixed in the centre of the circle: as ſoon as the ſoil is ſomewhat dry, it is trodden down by horſes, which are faſtened to the ſtake by means of a rope, and driven round it, till the line becomes ſo ſhort, that the animals are compelled to run in a contrary direction; and, after repeatedly purſuing this alternate career, towards, and from the centre, the floor is at length prepared. The ſheaves are now diſpoſed in ſucceſſive circles, and untied, in order to be trodden. The thraſhing is performed by a man driving two or three horſes round the poſt, till all the ears are ſeparated, and the ſtraw is reduced to very ſhort pieces. It is afterwards removed; the grain and chaff are collected into a heap, and winnowed by the aid of ſhovels: but the ſame ſtraw is uſed as fodder during the winter.

IV.

ON THE CULTURE OF THE VINE IN CRIM-TARTARY.

The grape is not only an indigenous production, abounding in the mountainous parts of the Crimea, ſometimes having oblong white berries, and ſometimes ſmall round black fruit; but it has alſo been planted in different vallies and diſtricts, from

from the remoteſt periods of antiquity. STRABO* mentions the culture of the vine near the Boſphorus, and the care taken to cover it with earth, during the winter, or to bury its roots in the ſoil, in order to ſhelter them from the cold; as is ſtill practiſed in the vicinity of the Alma and Katſha. It is certain, that the Crimean Peninſula is indebted to the Greeks for the culture of the vine; which was afterwards extended by the Genoeſe in the territories occupied by that enterprizing people.

The manner in which this plant is propagated on the banks of the Alma, the Katſha, and the Belbek, has already been mentioned: I am convinced, and experience has proved, that it is uſeleſs to ſhelter vines from the cold during ſevere winters, as is practiſed in the vicinity of the above-named rivers, by accumulating earth around the crowns of their roots. Such labour, however, is not without ſome benefit; for not only the ſoil is thus more frequently ſtirred, and cleared from paraſitic plants, but vegetation is likewiſe promoted; ſo that the leaves and bloſſoms, as well as the grapes, appear at an earlier period; in conſequence of which the latter may be ſuffered to become more perfectly ripe during autumn. The method above alluded to (like that practiſed in Hungary) conſiſts in training the vines in the manner of buſhes, with a ſtump above the root, ſo as to produce ſeveral prolific ſhoots: it is doubtleſs far more productive, but can only be purſued in the richeſt ſoils, and tends to exhauſt the ſtocks in a ſhorter

* *Lib. VII.* "*In eodem* (*Boſphori*) *trajectu ferunt, Neoptolemum Mithridatis legatum æſtate navali prælio, hyeme equeſtri pugna, barbaris ſuperiorem diſceſſiſſe. Sed et vites ajunt in Boſphoro ſub hyemem defodi, multa ingeſta terra.*"

ſpace of time. On account of their fertility, the vineyards of theſe regions are ſold at a high price; though the wine is cheap, and the culture requires great labour: they are uſually eſtimated, according to the number of fruit-bearing buſhes, at one ruble each. The manner of planting the layers, on the banks of thoſe rivers, is altogether different from that practiſed in the ſouthern vallies. Firſt, the land, in which ſuch plantation is intended to be made, is prepared by the plough and ſpade: next, a poſt with a point of iron, or of hard wood, is driven perpendicularly into the ſoil, to a ſufficient depth; ſo that, when the layer is inſerted, there may be from five to ſix knots under ground, and only two viſible above the ſurface. The ſtake, or piece of wood, is now withdrawn, and a plant depoſited in each hole; which is then filled up with looſe mould, and afterwards with water, that remains there for a conſiderable time, owing to the compreſſion of the earth, occaſioned by forcing in the ſtake. According to the ſtate of the weather, ſuch holes are ſubſequently irrigated every third or fourth week till autumn, or until the layers have taken root. In the ſucceeding year, the ſurrounding ſoil is dug up, and theſe new plantations are ſupplied with water from canals.

At Sudagh, and in the other ſouthern vallies, the vine is planted either according to the Greek mode, in ſmall oblong trenches, in each of which two or three layers are depoſited in oppoſite directions, ſmall drains being cut from one to another, for carrying off the water; or, long parallel trenches are dug, wherein the layers are obliquely arranged on both ſides: the latter method has probably been introduced by the Genoeſe. The Tartars, however, ſeldom plant new vineyards; and their manner

manner of cultivating the vine conſiſts chiefly in making layers; in burying the old unproductive vine-ſtocks in deep pits, either in the middle or on the borders of the plantation; and in leaving a few good branches above ground, on which only two eyes are ſuffered to remain. When this operation is performed on the borders, with a view to extend the vine-yard, it is denominated by the Greek word *Uſatma;* and that executed in the centre, in order to fill up the vacant ſpace, is termed *Katavolat.* There is likewiſe a third method of ſtocking old plantations, called *Doldurma:* it is effected by putting long twigs deeply into the ſoil, and ſeparating them from the parent-trunk, as ſoon as they have taken root. By ſuch injudicious treatment, however, all the vines in the plantations on the ſouthern ſhore are irregularly ſet; their roots promiſcuouſly intertwining, not unlike eſpaliers, under ground. There are only a few foreign proprietors, who have lately applied themſelves to the propagation of this uſeful ſhrub, by forming new plantations.

As the vine is never covered with ſoil, during the winter, in any of the ſouthern vallies, where it receives no injury from the ſevereſt froſts; and, as the Tartars ſtir the ſurrounding earth only once in the ſpring with clumſy ſpades, this branch of economy is attended with leſs expence than in other countries, but is at the ſame time leſs profitable. The latter circumſtance muſt chiefly be attributed to the barrenneſs of the marly ſoil, eſpecially at Sudagh; for that in the vale of Koos is not only richer, but alſo more productive. The inhabitants exert all their endeavours to aſſiſt nature by forming canals, into which water is conducted from the ſprings and ſtreams,

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for the purpoſe of copious irrigation, both in the winter and in autumn, as well as in the ſpring, and immediately after the vine has flowered. Theſe irrigations are ſo conſiderable, that the vineyards may be compared to fens. By ſuch miſmanagement, the quality of the grapes is greatly impaired; and expert vine-dreſſers water the plants only once in the winter, and in the ſpring; as, by neglecting thoſe operations, the ſtock would neither ſhoot forth a ſufficient portion of fertile wood for the ſucceeding year, nor even bear any fruit; nay, it would perhaps gradually wither. On account of the drought uſually prevailing in ſummer, all the vineyards are planted uniformly in the vallies, where gutters can be employed for ſupplying them with water.

In the ſouthern dales, the vine is trained as low as poſſible; ſo that only three eyes are left on its trunk in the ſpring, the reſt being removed as ſuperfluous: hence all the ſtocks are knotty, crooked, and lie on the ground, ſpread out in the form of a fan. Thoſe who leave a greater number of eyes, with the view of obtaining a more abundant vintage, incur the riſk of exhauſting or ſpoiling their vines for ſeveral years; ſo that they would be obliged to ſaw off their trunks near the ground, or even to bury them entirely. After having attained the height of three feet ſix inches, they yield but little fruit, are expoſed to ſtorms, and require to be earthed up for their ſupport. There are, however, ſome kinds of vines, which may be trained higher, for arbours and eſpaliers: nay, if newly planted vineyards were properly manured, ſeveral varieties would probably ſhoot up with greater luxuriance, produce ſtronger branches, and yield more profit. At the ſame time, healthier

healthier vine-ſtocks might be obtained, than at preſent reſult from ſuch frequent cuttings. On the other hand, this method would be more expenſive than that now practiſed, an account of the ſtakes and lattices for eſpaliers, which would become neceſſary; nor would the grapes ripen ſo completely: for even the taller ſorts mature more perfectly, and afford ſweeter fruit, when they are cropped, and, according to the cuſtom of the country, ſupported only by the ſhort trunks of the Cornelian cherry-tree, or *Tſhatall;* to the branches of which the vine-ſhoots become ſpontaneouſly attached.

At Aſtrakhan, where the vine is buried with all its wood, it never flowers later than the 15th day of May, unleſs the ſpring produce ſome rare exceptions: it is ſomewhat later on the banks of the Alma and Katſha, where it is ſimply over-ſpread with earth, which is removed in the vernal ſeaſon. On the contrary, in the ſouthern vallies, where the vine is never covered, the buds and flowers generally appear at leaſt fifteen days later: the grapes likewiſe do not ripen till the end of September; and, were it not for the fine long autumns peculiar to Crim-Tartary, no good wine could be produced in that country. When, however, the plant germinates at an advanced period of the ſpring, it is attended with this advantage, that the ſhoots are never injured by the late froſts, which frequently occur in the vicinity of thoſe rivers. Here, the vintage is generally completed before it begins in the dales of Sudagh and Koos, where it uſually takes place on the 1ſt of October; as, under the government of the Khans, the third day of that month was the time formerly fixed by law, for commencing the vintage.

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Some Tartars are acquainted with a mode of engrafting the vine, termed *Aſhlama*. For this purpoſe, young layers, or ſtems, not exceeding two inches in thickneſs, are ſelected, and ſtripped for the length of a ſpan beneath the uppermoſt knots, where they are ſawn off, and the ſurface is ſmoothed with a knife: the ſtem is afterwards ſlit, and the cleft kept open by means of a wooden wedge. Two grafts, from eight to ten inches long, are next cut on both ſides, for the length of an inch and a half, into a cuneiform ſhape, immediately below a knot; and are inſerted in the cleft, ſo that the grafts croſs each other on the external edge, where their bark comes into mutual contact. The ſtump is then tied with ſtrong pack-thread; a piece of bark, from the vine that has been cut, is laid cloſely on the inciſion; a handful of dried leaves is now preſſed upon it, and ſome moiſtened earth is ſpread over theſe in a ſimilar manner; ſo as to cover two or three knots with mould, and to leave the ſame number above its ſurface: weeping vines only, or ſuch as are in full ſap, are ſelected for grafting. Fifteen days after, when the buds begin to ſhoot, a full quart of water muſt be poured, every third day, over each ſtem into a hole made for that purpoſe, till about the ſeaſon when barley becomes ripe. The grafts, in general, ſhoot forth ſo vigorouſly in the firſt year, that in the following ſpring they will afford layers, and yield fruit: thus excellent varieties of the vine, (not yet introduced into Crim-Tartary), could be readily propagated, and bad ſtocks be improved. One man may engraft from fifty to ſixty ſtems in the courſe of a day.

The vineyards occurring in the vallies moſt favourable to this culture, ſuch as thoſe of Sudagh and Koos, are planted with

with ſeveral intermixed ſorts of vines, which moſtly produce white grapes; becauſe theſe probably yield here a much ſtronger wine, and ſucceed better than the red ſort. There is only one ſmall ſpot in every Tartar vineyard, containing ſome tall ſtems which bear red and white grapes: in ſeveral of them we obſerved a ſimilar piece of ground, planted with vines, producing black fruit.

In the firſt place, I propoſe to deſcribe the moſt common kinds of grapes, raiſed chiefly in the vallies above mentioned. Next, I ſhall notice the more rare and peculiar ſorts, many of which are cultivated in the vineyards of other countries; but I cannot, by the ſole aid of memory, aſcertain with preciſion their ſimilarity to foreign ſpecies. From theſe white berries, in particular, the dales of Sudagh and Koos have derived their celebrity; as in point of goodneſs, briſkneſs, and flavour, they greatly reſemble the beſt fruit produced in Lower Hungary, ſuch as thoſe of Ruſt and Ratzerſdorf; nay, with proper treatment, they would even ſurpaſs the latter; being on the whole very wholeſome, and well adapted to the climate of Taurida.

The white grapes moſt generally raiſed are the following:

1. The *Shira-Iſyum*, the proper ſignification of which, in the Tartar language, is ſimply *grape*. This large, mellow fruit, is of an oval form, of a deep green caſt, when reared in a moiſt ſoil, but approaching to white in dry ſituations: it has an uncommonly thin ſkin; is ſemi-tranſparent, remarkably hairy; and yields a large proportion of weak wine, which cannot be preſerved. When the grape is perfectly ripe, its bright emerald

colour often changes to a golden yellow. This ſpecies forms large ſhoots, and delights in a dry ſoil: its wood is of a yellow-brown hue, ſomewhat inclining to red. Its leaf is large, coarſely veined, with a white down on the lower ſurface; it has two deep and two leſs conſiderable inciſions; and, when dry, aſſumes a light-brown caſt. This grape matures ſooner; is more productive than other ſpecies; and is ſometimes eatable at the end of Auguſt. In wet years, it is apt to rot upon the ſtalk, on account of its great tenderneſs, eſpecially when ſuſpended near the ground: hence it ought to be planted ſeparately, and preſſed earlier, when its wine may be eaſily improved by adding a ſmall proportion of ſpirit, during the fermentation. On account of its abundant ſubacid juice, and fine ſkin, it is very palatable; and appears to correſpond with the *Aſpirant* or *Verdal* of the French, and the *Grüne Junker* of the Germans.

2. The *Kakura-Iſyum* is, for the excellence of its juice, the moſt diſtinguiſhed grape of all Crim-Tartary; to which, and the three ſucceeding ſpecies, the wines of Sudagh and Koos are chiefly indebted for their ſuperiority. The cluſters of this ſpecies are large and rather looſe; yielding oval, mellow berries, which are very ſweet, have a thin ſkin of a yellow or greeniſh hue; and which, on account of their thick bloom, preſent a pearly white ſhade. They afford the beſt and ſtrongeſt wine; and occupy nearly one half of the vineyards of Sudagh. When young, the ſhoots of this vine are ſlender, and

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of a clear brown colour; ſo that it grows up with difficulty, and ſlowly attains to its vigour; for this reaſon, alſo, it is trained uncommonly low. But, when it is well rooted in a good ſoil, and is ſupplied with moiſture, it thrives luxuriantly in long vigorous branches with large leaves; bears numerous looſe cluſters; and, in a wild ſtate, climbs high above the trees. Its foliage, eſpecially in a dry ſoil, is darker on the upper ſurface than that of the preceding kinds: on their lower ſides, the leaves have a white down, with four deep indentures; they aſſume a ruſty yellow colour in the autumn, and likewiſe fall earlier than thoſe of other ſpecies. Nevertheleſs, the fruit does not ripen till the end of September, when it is uncommonly ſweet, and agreeable to the palate. This ſort apparently reſembles the ſmall *Rieſsling* of the Germans.

3. There is a variety of the *Kakura-Iſyum* which is in every reſpect larger; yields a thick-ſkinned berry; and, during its maturation, becomes of a golden-yellow, or browniſh hue. Its branches are thick and long, partaking of a reddiſh brown tint; the leaf is large, hard, with two deep and two ſlighter inciſions, without down, and coarſely veined. This kind is leſs calculated for making wine, and is by the Tartars called *Surva-Iſyum*.

4. The *Terrgüllmek* is another ſpecies of grape nearly allied to the *Kakura*. It has a ſtrong ſtem, and ſhoots forth pretty large twigs, of a light-brown colour, with a ſlightly ſerrated, reticular leaf; the lower ſurface of which is covered with a perfectly white down. The

berries are ſmall, of a yellowiſh pearl-white, ſomewhat ſpotted with brown, have a very thin ſkin, are uncommonly ſweet, and eaſily drop from the ſtalk. This grape would doubtleſs afford the beſt wine, if it were more extenſively cultivated. In Hungary, it is known by the name of *Feghiri*.

5. *Myſhket*, or Muſcadel, properly the great *Rieſsling* of the Germans, is a ſpecies by no means common in the vineyards; it is, however, plentiful at Koos, and contributes to the ſtrength of the wines produced in that valley. This ſort forms a looſe cluſter, with many ramifications, bearing ſpherical, firm, and moderately large berries; which, on the ſide expoſed to the ſun, frequently become very brown, in a manner ſpeckled; and, if propagated in a good, warm ſoil, acquire a ſtrong muſcadel flavour, that diſappears after the fermentation of the wine. So great is their ſweetneſs, eſpecially at Koos, that the grapes, when perfectly ripe, are nearly as luſcious to the palate, and their juice is as viſcid, as honey. The *Myſhket* ripens at the ſame time with the preceding kind; its ſtem produces conſiderable ſhoots of a yellowiſh-brown hue; and it ſhould be placed in eſpaliers or arbours, as it requires to be trained high: for it is probably owing to ſhort training, that the cluſters frequently conſiſt of ſmall grapes, not exceeding currants in ſize, though a few large berries are occaſionally intermixed. The foliage is broad, coarſely veined, having a white down beneath; its ſtalk is of a purple colour, and, in drying, acquires a pale brown

brown caſt. Although this grape begins to ripen ſo early as the end of Auguſt, it may nevertheleſs be preſerved till winter.

6. The *Kondavaſta* is a vine with large ſhoots; having a browniſh wood, and broad, coarſely veined, ſlightly indented, hard leaves; the lower ſide of which is reddiſh about the veins, with a white down in the intermediate ſpaces. The cluſter is ramified like that of the Muſcadel, though producing larger, looſe berries of a perfectly ſpherical form: externally they are browniſh, and covered with ſpots; have a more watery taſte, as well as a thinner ſkin; and do not in the leaſt partake of its flavour. The *Kondavaſta* alſo ripens, and ſheds its leaves at a later period in the ſeaſon.

7. *Pandaſs* is the name given at Koos to a very common and luxuriant vine; which is of a yellow-brown colour, and has long joints. Its coarſe foliage is dark green, and ſtrongly veined; the ſtalks and principal veins have a purple tinge; they are ſomewhat downy below, with four ſlight inciſions; and, when dry, acquire a browniſh caſt. The cluſter is large, and much ramified like that of the two preceding ſpecies; the grapes often hang very cloſe together; are moderately large, ſpherical, and of a yellowiſh-green ſhade; when expoſed to the ſun, they become browniſh, and marked with ſpots. Their taſte is ſomewhat watery, eſpecially in moiſt years; but their tolerably thick ſkin imparts a degree of bitterneſs and aſtringency. The leaf of this ſpecies retains its green colour to a very late period of autumn.

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—From their great reſemblance to each other, theſe three ſorts appear to be only varieties of the ſame ſtock; but the flavour and quality of the wine, obtained from them, are remarkably different.

8. The *Kabak-Iſyum* is a vine which forms uncommonly ſtrong wood of a reddiſh-brown colour; and, though its joints are ſhort, it grows rapidly, as well as to a conſiderable height. Its large, thick leaf is of a yellowiſh-green hue, ſtrongly veined, but perfectly ſmooth on its lower ſide; having ſometimes two rather deep, and at others very ſlight inciſions: it remains on the branch till the autumn is far advanced. The cluſter, which is frequently of an uncommon ſize, has many ramifications like the preceding ſorts; it is looſe, and conſiſts of grapes, which are either perfectly round, or even flattened at the top, greeniſh, and covered with a white bloom. They have a thin ſkin, attain early to maturity, are ſweet and agreeable to the palate; but afford an inſipid wine. This fruit ripens in the beginning of September, and the ſtocks may be trained into very fine arbours.

9. *Kök-Ouſun;* a large ſpecies of vine producing long ſhoots. It is of a yellow-brown colour, and has perfectly ſmooth leaves, with deep interſections; the principal ribs and ſtalks of which are of a bright roſy tint. Its cluſter is large, and is compoſed of greeniſh-white, ſweet grapes; which have a thin ſkin, are of a conſiderable ſize, and rather an oval form.

10. The *Shabaſh* abounds in almoſt every vineyard, notwithſtanding its bad fruit for making wine. It is a very

a very ſtrong ſhrub, with ſhort joints of a red-brown colour, grows rapidly, and bears a profuſion of grapes; an advantage which probably renders it a favourite among the Tartars, who cultivate the fruit for the purpoſe of carrying it to market; and for preparing the marmalade called *Bekmeſs*, rather than for expreſſing wine. On account of their ſtrength, the ſtocks grow tolerably ſtraight, and do not exceed four or five feet in height. The large, yellowiſh-green leaves are ſlightly interſected, ſtrongly reticulated, and ſmooth beneath; they have reddiſh-brown ſtalks; fall at a late period of the year; and, when dry, become yellow. The cluſters are frequently large; but, in general, are of a middle ſize, and looſe ſtructure: the berries are ſometimes of the dimenſions of a crow's egg, turning from a greeniſh to a white bloom; have a thin ſkin, but are very pulpy, on which account their juice is with difficulty expreſſed. In a warm aſpect, they attain to maturity in the latter part of September; though they are later in cold and moiſt ſituations. The grapes may be ſuffered to hang on the branches till the firſt froſts appear; or they may be houſed in October, in which caſe they will keep till February; and, by preſerving, acquire additional ſweetneſs. Were the autumns warmer in Crim-Tartary, the fineſt raiſins might be obtained from this ſort; but, for ſuch purpoſe, they muſt now be dried in an oven; and, even thus prepared, they are far from being unpalatable. In their natural ſtate, the berries are unfit for making wine; as they yield a watery

watery muſt, which ſpeedily becomes acid. I have experienced, however, that by laying them on hurdles, in a moderately heated ſtove, for a whole night, their juice is not only leſs difficult to be expreſſed; but alſo the wine, thus procured, proves to be very ſweet and ſtrong. This grape apparently reſembles the *Chaſſelas Blanc* of the French, and is likewiſe ſaid to be common in Italy. Farther, it correſponds with the *Tolſtokoreey*, a thick-ſkinned grape, raiſed in the vineyards of Aſtrakhan. There is a large variety of the *Shabaſh*, the fruit of which is equal in ſize to a pigeon's egg.

11. *Khadym-Barmak*, or Lady's Finger, is the name given by the Tartars to a grape, which is frequent in all the ſouthern vallies of the Crimea: the Ruſſians denominate it *Byelaya-Aſma*, or the white eſpalier-grape. In a good ſoil, this vine forms very long ſhoots; its wood is ſtrong, ſhort-jointed, and of a browniſh-yellow ſhade. Its leaf is large, coarſely indented, and ſlightly interſected; of a light green hue, with purple ſtalks and veins, the upper ſurface of which is frequently of the ſame colour; while the lower ſide is ſtrongly reticulated, but perfectly ſmooth. In autumn it aſſumes a yellow-brown tinge. The looſe cluſters often attain a conſiderable ſize, and conſiſt of oblong grapes, which are of a greeniſh or perfectly white bloom, and in ſhape reſemble the laſt joint of the little finger. They may be eaten early in the ſeaſon; and, when fully ripe, aſſume a golden-yellow tint, being very ſweet; but their pulp is hard and in a manner cartilaginous; ſo that the ſkin cannot be ſeparated.

ſeparated. Hence they may be preſerved, like the *Shabaſh*, till late in the winter, and are eaſily carried to diſtant places; for which purpoſe they are chiefly reared. The grapes cannot be reduced by the preſs, and yield but little muſt: this ſpecies correſponds exactly with that termed in Aſtrakhan *Koſeey-Titkee*, or Goat's Teats.

The following ſorts are more ſcarce, and occur in the vineyards only as rarities:

12. The *Arſakhi*, or what is here called Goat's Teats (in the Ruſſian language *Koſeey-Titkee*), the fineſt and richeſt of all the Crimean grapes; which appears to have been introduced from Turkey, as it is alſo termed *Stamboul-Iſyum*. Its large, looſe cluſters are frequently two ſpans long, and conſiſt of cylindrical grapes of the ſize of a large finger; upwards of an inch and a half in length; often tapering at the fore-end, though obtuſe; of a greeniſh colour, covered with a white bloom: when fully ripe, the fruit acquires a yellowiſh ſhade, and depends looſely from long ſtalks; ſo that it ſwings from ſide to ſide, on the ſlighteſt motion. The pulp is rather firm and juicy, but of a watery taſte; and, in point of ſweetneſs, is inferior to the *Shabaſh:* it is impoſſible to ſeparate the ſkin from the fleſhy part. In each berry there are two or three ſtones, which are viſible near the ſtalk for nearly one-third part of the length of the grape. The branches may be eaſily engrafted on the Shabaſh: they require a warm ſituation; are nearly of the ſame red-

red-brown caſt as thoſe of the former, and have ſtrong wood with ſhort joints; ſo that old ſtocks ſtand erect like trees. The leaf of this ſpecies is large, of a yellowiſh-green ſhade, very ſmooth on its upper ſurface, with prominent and pale veins on its lower ſide: it has four deep inciſions, which peculiarly diſtinguiſh it from that of the preceding ſort. The fruit may be preſerved till a late period of the winter.

13. The *Balaban-Shabaſh*, or Great Shabaſh, is a variety ſpontaneouſly ariſing from the *Khadym-Barmak*. The plant produces thick ſhort-jointed twigs, with numerous yellowiſh-green, verdant, and durable leaves. Its fruit is perhaps the largeſt of the kind growing in the world; and its trunk frequently attains the thickneſs of a man's thigh. This ſpecies often occurs in the vineyards of Koos, but leſs commonly in thoſe of Sudagh. The cluſters are not very large; many of them conſiſting only of from ten to twenty grapes, and the biggeſt not exceeding one ſpan in length; but their berries hang cloſely together, have a perfectly globular form, and are equal in ſize to a walnut: they are of a pale-greeniſh yellow, covered with a chalky white bloom; and, when thoroughly ripe, are ſpeckled with brown at the extremities. The pulp of this grape is as firm, and adheres to the ſkin with the ſame tenacity, as that of the Shabaſh; but it matures much earlier, being eatable even in Auguſt: in September, the waſps commence their depredations upon it, and cauſe it to decay. Its taſte, though rather watery, is ſweetiſh and pleaſant; the

the ſhoots are of a yellowiſh-brown tint, and the leaves are pretty large, ſmooth on both ſides, with deep and wide interſections, being more obtuſely ſerrated than thoſe of the common *Shabaſh*; and, in drying, they aſſume a yellow colour.

Of red and black grapes, Crim-Tartary poſſeſſes, on the whole, neither any great variety of ſorts, nor a conſiderable number of plantations. The red wine of Sudagh is doubtleſs far inferior to the white of that place; and though, in proſperous years, it ſlightly reſembles that of Erlau (in Hungary), and in ſome meaſure even that of Roquemaure (in France), yet it is not durable, but ſoon turns acid, and does not poſſeſs ſufficient briſkneſs; either becauſe we have not the proper ſort of red grapes, and the climate is unfavourale to their culture; or, becauſe we are unacquainted with the moſt judicious manner in which the fermentation of red wines ought to be conducted. Our beſt grapes for making red wine, and which deſerve to be more generally propagated, are as follow:

14. *Tatlé-Kara-Iſyum*, or the ſweet black grape; which is ſparingly reared in the vineyards of Sudagh. It has brown wood; and a ſtrongly veined leaf, ſlightly cleft; the principal fibres and ſtalks of which are of a purple hue on both ſides; the lower ſurface being deſtitute of the uſual white woolly ſubſtance, and preſenting only a delicate downy roughneſs. On drying, it becomes brown. The cluſters are large, ramified, and looſe; their black grapes are of an oval form, have a fine ſkin, and eaſily drop from the ſtalks: they have a pleaſant ſweet taſte, and are full of juice; which,

though not red in a freſh ſtate, acquire a high degree of that colour during fermentation, eſpecially if the berries be in a putreſcent ſtate. This ſpecies appears to be the ſame grape as that of Burgundy.

15. The *Kara-Iſyum*, or black grape (the *Mühlrebe* of the Germans), is ſtill more common: it ſhoots forth ſtrong and luxuriant branches, of a reddiſh-brown hue; may be eaſily multiplied by layers; and has large, dark-green, reticulated leaves, the lower ſurface of which is covered with a white down; having ſmall and ſcarcely perceptible inciſions; and becoming altogether of a deep red in autumn, previouſly to their fall. The cluſter is large, cloſe, and compoſed of black berries, nearly globular: in wet ſeaſons, they are of a conſiderable ſize; have a firm ſkin; and are pleaſant to the palate; though containing too little ſaccharine matter and pungency to afford good wine. Their muſt is uncommonly delicious; but the wine proves to be acerb and weak. This kind of grape ripens early, if expoſed to the ſun; when it becomes brown, and remains a long time on its ſtem, without being ſubject to putrefaction.

16. Another ſpecies, perfectly reſembling the Kara-Iſyum, but which bears larger cluſters, and grapes of a different flavour, is that termed *Keffeé-Iſyum*, and alſo *Stambol-Seeyah-Iſyum*, which is not unfrequent at Koos, though rarely met with in other vallies.

17. The *Kyſh-memé*, or Goat's Teats, is an early ſpecies, which begins to ripen towards the latter end of Auguſt, producing

producing large rich cluſters; and has a very ſtrong ſtem, with reddiſh-brown branches of a moderate length. The leaves are attached to red ſtalks, being ſtrongly reticulated on the lower ſurface, not unlike thoſe of the common Aſma, but deſtitute of down: about the time when the fruit ripens, they are covered with ſpots or veins of a perfectly blood-red colour. The grape is of an oblong form, reſembling the *Khadym-Barmak*, and is alſo of a ſimilar ſize; though black, full of a red juice, and having a thin ſkin: this fruit correſponds with the *Teinturier* of the French.

18. *Tanagos* is a luxuriant ſpecies of vine, with a large ſtem, and branches; which would be very advantageous to the cultivator, on account of its fruitfulneſs, large cluſters, and durability; if the quality of its wine were equal to the great quantity it yields on expreſſion. It has large brown twigs, and broad leaves, that are ſlightly interſected with red ſtalks and veins; being tolerably ſmooth, ſomewhat downy on the lower ſurface, and becoming brown when they wither. The cluſters frequently weigh from ſix to ten pounds; and are cloſely arranged with globular and very large grapes. They do not uniformly attain to maturity, but remain for a long time greeniſh on the ſide deprived of the ſolar rays. In hot ſummers, however, they become perfectly ripe, eſpecially in the vineyards of Koos; and aſſume a browniſh-red colour. They have a thin ſkin; though watery, are agreeable to the palate; and may be preſerved till the end of the year. In the vale of Sudagh, this ſpecies is ſcarce, but occurs more frequently

quently in that of Koos, where a conſiderable quantity of wine is ſpoiled by its admixture; becauſe moſt of the proprietors promiſcuouſly expreſs the different kinds of berries. The grape of the *Valteline* is ſuppoſed to correſpond with the *Tanagos*.

19. The beautiful coral-red Muſcadel grape, *Kirmiſi-Miſk-Iſyum*, or *Alburla* (the *Rauhkleber* of the Germans), is rather ſcarce, and deſerves to be more generally cultivated. It ſhoots forth vigorous and long twigs of a yellow-brown colour: the leaf has deep and broad interſections, five lobes coarſely indented, with a red ſtalk; and its lower ſurface is marked with ſtrong red veins, and a very fine downy velvet. Its cluſters are ſometimes large and looſe, but occaſionally ſmall and cloſe; being frequently compreſſed into a globular form, and depending from long ſtalks. The grape has one or two ſtones; is ſpherical, ſomewhat hard-ſkinned, and has a poignant, though very agreeable, muſcadel flavour. It ripens at a late period of the ſeaſon, and may be preſerved till the winter is far advanced.

20. The *Fodſha*, or *Bakhſia*, is an excellent ſort of grape, not unfrequent on the banks of the Katſha; and which I firſt introduced at Sudagh.—This fruit becomes ſweet in Auguſt, as ſoon as its greeniſh colour begins to change into a beautiful roſy tint; and, notwithſtanding its delicacy, remains on the ſtalk till October, without ſpoiling. The branches are ſtrong, ſhort-jointed, upright, moderately long, and of a brown-red hue: the large leaves are ſlightly ſerrated, with purple ſtalks and veins, being of a dark-green colour on their upper ſide; covered

covered with a white down beneath; and in drying become brown. The cluſters are cloſe, of a moderate ſize, conſiſting of ſmall, round, roſe-coloured, thin-ſkinned, and ſemi-tranſparent grapes, which are very ſweet.—They apparently reſemble the *Klävner* of the Germans.

21. The *Aſma*, a vine with lofty branches, is one of the moſt common ſorts, occurring both in the beſt vineyards of Sudagh and Koos, and along the whole ſouthern coaſt. Of all the vines, this produces the ſtrongeſt and talleſt ſtems, the branches of which are generally trained on poles and frames, ſo as to form arbours; or they frequently climb above the trees. It bears abundance of fruit: the twigs often attain the length of two fathoms and upwards in the courſe of one ſummer. Its leaf is large and coarſe to the touch, of a dark-green colour, with reticulations; being concave on the upper ſurface, and convex below; on which ſide it preſents a velvet-like roughneſs. The cluſter, eſpecially on old ſtocks, is often the largeſt produced by any ſpecies of vine, and weighs ſeveral pounds: the berries are cloſely arranged, about the ſize of the laſt joint of a man's thumb; of an oval form, and a dark-brown colour: their bloom is blueiſh. Notwithſtanding the beautiful appearance of theſe grapes, they are by no means adapted for making good wine; as the liquor they yield is always weak and acerb, and ſoon becomes acid, even when the muſt is boiled. Though their ſkin is thick, they are remarkably juicy, may be eaſily tranſported,

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and be preſerved till a late period of the winter; on which account they are in great requeſt at Sudagh, among the carriers of Ruſſia Minor, who purchaſe conſiderable quantities for ſupplying the markets of that province.—There are two varieties of the *Aſma;* one of which ripens early, bearing looſe cluſters of ſmaller, ſweeter, and blacker grapes; while the other is a later ſort, and its fruit never becomes perfectly mature.

22. In the vineyards of Sudagh, we rarely met with a grape which is frequently cultivated in thoſe of Otuus: in ſize, taſte, and pulp, it reſembles the *Balaban-Shabaſh*, but is of a fine roſe-colour, and a more oblong form: it does not preſent very large cluſters, and attains early to maturity. The berries reſemble pigeon's eggs in ſize; are of a yellowiſh-green tranſparent hue, with cloſe, bright-red ſtreaks; contain one or two conſiderable ſtones, and have a tender ſkin, that cannot be eaſily ſeparated: when perfectly ripe, they are of a roſy tint: the branches are neither very long nor vigorous: the wood is of a browniſh-yellow colour; the leaf-ſtalk is of a red caſt; the leaf is divided into five coarſely indented lobes, with deep interſections; being deſtitute of down on the lower ſide, but ſtrongly veined and reticulated. No grape is more grateful to the palate, and pleaſing to the eye, than the variety juſt deſcribed.

23. The *Muſgulli* produces beautiful, firm fruit, which ſucceeds admirably in warm dry ſummers, and is well adapted

adapted for carriage, as well as for preſervation during winter. The berries often hang cloſely together in cluſters; have an oblong form; and are not much larger than the laſt joint of the little finger; being of a brown-red, occaſionally of a blackiſh colour, pulpy, and ſweet: they have a thin, almoſt taſteleſs ſkin, and ſometimes one or two ſtones: when the fruit withers, it acquires the agreeable flavour of fermented wine. This ſpecies parts with its foliage earlier than the *Aſma*, which it reſembles both in its branches and leaves, excepting that it is weaker. There is another variety of this fruit, raiſed at Koos, to which is very ſimilar the former, being uncommonly ſweet, and having a thin ſkin.

24. In the vineyards of Koos, there likewiſe occurs a vine bearing a large cluſter of ſmall reddiſh grapes; they have only one ſtone, and in form are not unlike the black *Mühlrebe* of the Germans. The branches are of a light-brown colour; the leaf is ſmall, ſlightly cleft, and ſomewhat downy on the lower ſurface: this plant produces conſiderable ſtems.

Other vallies of the ſouthern coaſt are ſaid to poſſeſs ſtill more numerous varieties of the grape, with which I am not particularly acquainted. A Greek phyſician, reſident at Kutſhuk-Oſen, has communicated to me the following:

Galkitſh, a red grape.

Tylki-Karaſſi, a black, long grape.

Uſta-memet-Karaſſi, black.

Irin-Shava-Karaſſi.

Tuvak, *Marava*, *Kurt-Kuiruk*, *Seitiin-Iſyum*, all of which are black.

Iſmir, or Egyptian grape, black.

Kumino, white.

Ketſhi-Memeſſi-Taſhli, and *Kairee*, white.

Kumla, a ſtrongly flavoured, white muſcadel grape.

Beyas-Tanagos, white.

Satſhma-Daneſſi, alſo white.

Beſide theſe, he has obſerved four ſorts of vines, which are either naturally wild, or have been ſuffered to degenerate.

All the white grapes in Sudagh, Tokluk, and Koos, as well as in other parts of Taurida, are merely preſſed in troughs, compoſed either of large flat ſtones, or of wood: the lees are paſſed through preſſes of a ſimple conſtruction, and the muſt, inſtead of being allowed to work, is poured into caſks, the bung-hole of which is left open until the fermentation be completed. Theſe different proceſſes are ſo negligently conducted, and moſt of the proprietors permit ſuch large quantities of bad grapes to be expreſſed with berries of a better quality, that it is matter of ſurprize to find the wine, in general, tolerably good. On the contrary, thoſe who are more cleanly, and pay greater attention to the preparation of their wines; who ſuffer the grapes to become perfectly ripe; gather them in favourable weather; pour the juice into clean caſks; give the muſt a ſmall addition of good brandy, previouſly to fermentation; ſupply the veſſels properly; proceed cautiouſly in clarifying the wine, which proceſs may be performed in the beginning of March, or earlier; thoroughly fumigate their caſks with ſulphur, and keep them in good order; ſuch cultivators

tivators obtain wines, eſpecially in Sudagh and Koos, which in point of excellence may vie with the beſt and moſt ſalubrious liquors deſigned for the table. Farther, if the grapes be judiciouſly ſelected, dried in the ſun, in ovens, or by other means, they will yield a ſweetiſh wine, that is in no reſpect inferior to what the Germans denominate *Straw-wine*. If the liquors be bottled at the right time, and kept in the ſame manner as Champagne, they efferveſce, expel the cork, and burſt the bottles, with ſimilar force. The red wines, indeed, are ſuffered to ferment upon the lees; but, in general, neither for a proper length of time, nor in vats of ſufficient capacity: the fruit is likewiſe uſed in an immature ſtate; or the fault may alſo lie in the aſſortment of the grapes, ſo that the wine is commonly of an inferior quality. All the Crimean wines are moſt agreeable to the palate, in the firſt and ſecond years after their clarification. If they are intended to be preſerved for ſeveral years, they ought to be drawn off into bottles: for, notwithſtanding every precaution, when kept in caſks, they ſpeedily acquire a bitteriſh, or ſlightly acid, taſte; and eaſily form a mouldy ſcum on the ſurface.

The principal obſtacles to the proſperous culture of the vine, in Crim-Tartary, are the following:

1. The high rate of wages:—on account of the ſcanty population, labourers are paid half a ruble for a day's work, though the prices of the wines are low; becauſe many of the neighbouring towns and provinces are ſupplied with thoſe of Moldavia and the Archipelago, which are not charged with ſufficient duties on their importation, and are conſequently cheaper. This circum-

ſtance, and the indifference of purchaſers, with reſpect to the quality of the wine, are the reaſons why no perſon endeavours to prepare ſuperior liquors, except for his domeſtic uſe; as the generality are not diſpoſed to pay more for good than for bad wine; nearly all the grapes being ſold and exported in the ſtate of muſt.

2. The ignorance and neglect of the Tartars in planting new vineyards; becauſe they do not place the layers ſufficiently deep in the ground, but depend entirely on irrigation; ſo that the young vines either periſh, or become ſickly and languid; and, at the expiration of many years, produce only feeble vineyards, which cannot ſubſiſt without a conſtant ſupply of water: for this reaſon, very few new plantations are formed; as no cultivator is inclined to lay out money upon an uncertainty, while the majority are not opulent enough to advance the firſt expenſe.

3. The numerous injuries to which vineyards are expoſed in this country, from vermin as well as the inclemency of the weather; and which I now proceed to detail.

When, for inſtance, frequent fogs iſſue from the ſea, or heavy rains occur, at the time of flowering, moſt of the bloſſoms are deſtroyed; as, in fact, thoſe of all fruit-trees are thus damaged. Farther, the produce of the vineyard is often diminiſhed by hail, which bruiſes and lacerates the grapes; often by drought during the fruit-ſeaſon, together with the want of water for irrigation; and ſometimes by early froſts, or rainy weather in the month of September. Still more frequently, when the grapes are nearly ripe, violent tempeſts

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ariſe, which beat down a large quantity of the berries, or at leaſt injure them to ſuch a degree, that they ſpeedily become dry or putrid.

The moſt deſtructive enemy to the vine, in Crim-Tartary, is a ſmall kind of caterpillar, peculiar to that country: as ſoon as the buds begin to open in the ſpring, it eats its way, eſpecially into the fruit-buds, and devours the germ of the grape. Two or three of theſe ſmall worms, creeping from one germ to another, are ſufficient to injure a whole vine in ſuch a manner, that it bears no fruit, and produces not a ſingle regular ſhoot during the ſucceeding year. I have ſeen ſome vineyards at Sudagh, where theſe vermin have particularly multiplied for ſeveral years, ſo as completely to ruin, and ſtrip them of their leaves. This diminutive caterpillar, with ſixteen legs, which has hitherto remained a non-deſcript, commits its depredations towards the end of April, and in the month of May, eſpecially in old vineyards. When full grown, it is half an inch in length, and of the thickneſs of a ſtraw. Its head is black, projecting anteriorly, pointed at the fangs, and can be withdrawn under the firſt ring, which is ſcutiform, black, and edged in front with a yellowiſh-white ſtripe. Below, its body is alſo yellowiſh-white, and wrinkled; above, it is black, as far as the lateral margin, where this colour terminates. On each ſide is a row of pale-red tubercles, with tufts of whitiſh hair; and along the back there are two ſimilar rows with yellowiſh tufts. The caterpillar has rather a ſlow pace, ſpins from beneath, and in general fixes on the buds and moſt tender leaves, to which it firmly adheres. On being touched, it rolls itſelf together, though not very cloſely,

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and remains for ſome time in this poſition: it is uncommonly voracious. Previouſly to caſting the ſkin, it draws a delicate web over its body upon a leaf. During the whole month of May, theſe vermin nibble, eat large holes through, nay, often totally devour the leaves; towards the end of that month, they gradually commence to ſpin, and to convert themſelves into a chryſalis; from which, at the end of a few weeks, there iſſues a ſmall moth, entirely ſimilar in form, and almoſt in ſize, to the female of the *Sphynx Statices*, but of a blackiſh colour, with a faint luſtre (*aeneo-fuſca*).

Next to this caterpillar, the ſmaller locuſt with roſe-coloured wings, or *Gryllus Italicus* (which frequently commits depredations in Spain), has for ſeveral years been very deſtructive to the vineyards of Crim-Tartary. This inſect, indeed, appears annually on the dry eminences in the arid ſouthern regions, from the European boundary as far as the Irtiſh, and the mountains of Alta; but it is only in particular years, that it multiplies in ſuch numbers, as to become pernicious. After the ſevere winters of 1799 and 1800, theſe locuſts became ſo numerous in the Crimea, that they traverſed the air in prodigious ſwarms; and, wherever they ſettled, they not only deſpoiled all the herbage and culinary plants of their verdure; but even ſtripped ſuch trees as were agreeable to them, eſpecially the vines, of all their foliage, and committed great ravages in the country. Their habits, reſpecting which BOWLES relates many wonderful and true particulars, in his Natural Hiſtory of Spain*, are certainly very remarkable. In 1799, I had no

* *Introduction à l'Hiſtoire Naturelle, et à la Geographie Phyſique de l'Eſpagne, traduite de l'Original Eſpagnol de Guill. Bowles, par le Vicomte Flavigny. Paris.* 1776. 8vo. p. p. 249, and following.

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opportunity of obſerving theſe vermin in the firſt period of their exiſtence, with uninterrupted attention; nevertheleſs, they ſufficiently diſtinguiſhed themſelves by the injury they occaſioned in many diſtricts, eſpecially in the dry dales of Sudagh and Koos; where they cauſed extenſive damage, both in the reptile and in the winged ſtate. In that year they appeared chiefly in July and Auguſt, proceeding from the ſea-coaſt into the valley; and, where they found no weeds in the vineyards, they ſtripped all the vines of their leaves, eſpecially along the borders of plantations, and in the direction taken by the ſwarm. The cluſters of large, but unripe, grapes remained till the end of September, on theſe denuded vines, without increaſing in ſize, filling with juice, or ripening; ſo that they were hard and green like peaſe, and thus afforded ocular demonſtration of the detriment, that muſt ariſe from the practice of plucking the leaves from vines, which is recommended by many cultivators*. It was not till October, when the vines had again acquired leaves from the collateral buds, that they ripened, though imperfectly, and afforded a bad acidulous muſt. In a winged ſtate, theſe locuſts at length devoured the foliage of the trees; and the *Fraxinus Ornus*, or Manna-Aſh, in particular, was every where ſeen ſtripped to its very ſummit: nor were orange and nut-trees exempted from

* The only work on the ſubject of gardening in which I find the plucking of the leaves reprobated, and their utility in nouriſhing and ripening the fruit, and perfecting the buds againſt the next year, properly inculcated, is "*La Pratique du Jardinage, par M. l'Abbé Roger Chabol.*" *Paris.* 1770. 8*vo*. *II. Partie, p.* 656.; a work that on the whole evinces great experience. The leaves are cerainly the organs, by which plants not only imbibe moiſture, but alſo decompoſe the air, and inſpire the requiſite portion of caloric and oxygen.

their

their depredations. On the eminences, where the ſoil was rather looſe, they were obſerved in companies, depoſiting their eggs in holes, which they bored with their jagged poſteriors; and which already afforded a bad omen for the enſuing year. Great numbers of them, however, were carried by northerly winds into the ſea, where they periſhed, and were afterwards waſhed on ſhore in heaps.

The ſevere winter of 1799-1800, inſtead of diminiſhing theſe vermin, ſeemed rather to have favoured their propagation. In the beginning of May, the young brood appeared every where in large ſwarms, and eſpecially in the ſouthern vallies, at firſt taking their courſe towards the ſea, but afterwards moving to and fro in various directions. Some of the ſwarms conſiſted of innumerable millions, and frequently, where they lodged, formed an entire black covering over the ground, upwards of one hundred fathoms in length, and from forty to fifty in breadth. In ſerene warm weather, the locuſts are in full motion in the morning, immediately after the evaporation of the dew; and, if no dew has fallen, they appear as ſoon as the ſun imparts his genial warmth. At firſt, ſome are ſeen running about, like meſſengers, among the repoſing ſwarms, which are lying partly compreſſed upon the ground at the ſide of ſmall eminences, and partly attached to tall plants and ſhrubs. Shortly after, the whole body begins to move forward in one direction, and with little deviation. They reſemble a ſwarm of ants, all taking the ſame courſe, at ſmall diſtances, but without touching each other; they uniformly travel towards a certain region, as faſt as a fly can run, and without leaping, unleſs purſued; in which caſe, indeed, they diſperſe,

diſperſe, but ſoon collect, and follow their former route. In this manner, they advance from morning till evening, without halting, frequently at the rate of one hundred fathoms and upwards in the courſe of a day. Although they prefer to march along high-roads, foot-paths, or open tracts, yet when their progreſs is oppoſed by buſhes, hedges, and ditches, they penetrate through them: their way can only be impeded by the waters of brooks or canals; as they are apparently terrified at every kind of moiſture. Often, however, they endeavour to gain the oppoſite bank with the aid of overhanging boughs; and, if the ſtalks of plants or ſhrubs be laid acroſs the water, they paſs in cloſe columns over theſe temporary bridges; on which they even ſeem to reſt, and enjoy the refreſhing coolneſs. Towards ſun-ſet, the whole ſwarm gradually collect in parties, and creep up the plants, or encamp on ſlight eminences. Woe, then, to the vineyards in which ſuch a ſwarm ſettles for the night; and, if the following day ſhould happen to be cold, cloudy, or rainy (in which weather they never travel), they not only conſume all the weeds and vine-leaves in it, but frequently, when the weeds do not ſupply them with ſufficient nutriment and exerciſe, they completely ſtrip the bark and buds off the young twigs; ſo that theſe ſhoots remain, throughout the ſummer, as white as chalk and full of ſap, without producing freſh foliage. The ſame fate awaits thoſe places on which they ſettle for the purpoſe of caſting their ſkins. It is a remarkable circumſtance, that, while the vine-bloſſoms continue cloſed, the inſect does not attack them; but, as ſoon as they are blown, it devours the whole of them in the moſt rapacious

manner, the ſtalk only being ſpared. The plants, which they formerly conſumed with the greateſt avidity, were thoſe chiefly occurring in vineyards; ſuch as the *Carduus Tataricus*, *Salvia nemoroſa*, *Millefolium*, *Melilotus*, *Cerinthe*; the fetid and poiſonous *Conium maculatum*, which does not prove fatal to them; the *Aſparagus volubilis*, *Ebulus*, *Coronilla varia*, and *Valentina*; various kinds of *Geranium*, *Linum* and *Inula*, *Centaurea ſolſtitialis*, and all bitter vegetables. On the other hand, they did not prey upon any kinds of graſſes; ſome ſpecies of grain were alſo exempt from their depredations, eſpecially millet; as well as ſedge, which is the favourite food of the great erratic locuſt; together with the *Ariſtolochia Clematitis*, that alſo luxuriantly grows in the vineyards; the *Clematis Vitalba*; the different *Euphorbia*, *Rumex Patientia*, *Mentha ſylveſtris*, *Artemiſia maritima*, *Contra*, *Pontica* and *Auſtriaca*; the rough *Echia*; all the ſpecies of the *Atriplex* and *Salſola*; the *Stellera Paſſerina*, the milky *Sonchus*, *Chondrilla*, and *Prenanthes*, *Rhus Cotinus*, and *Coriaria*. After having conſumed every other vegetable, they attack the Caper-buds, the *Beta Cycla*, and the various *Euphorbia*; to the latter of which it muſt probably be aſcribed, that many inſects (while they were caſting their ſkins for the laſt time), in the year above alluded to, firmly attached themſelves to the ſtalks of tall plants, and even to trees, where they ultimately periſhed.

Among the innumerable ſwarms of the young brood of the *Gryllus Italicus*, which has a blackiſh appearance, the larger larvae of that ſpecies, as well as of the *Gryllus cæruleſcens*, were ſeen but thinly interſperſed during their march. Various

particular

particular locuſts, without wings, ſuch as the *Gryllus verrucivorus*, *viridiſſimus*, and ſome others, had alſo increaſed in the laſt year far beyond their ordinary numbers; but they did not travel in company with the former, though they likewiſe greatly damaged the vineyards, and often bit off the ſtalks of the grapes. It was remarkable, that, in the ſame years, when theſe vermin became ſo numerous, the large erratic locuſt, from the banks of the Dniepr, together with the ſmall locuſt, alſo overſpread the whole government of New Ruſſia, and a part of Little Ruſſia, in countleſs ſwarms: they did not, however, viſit the Crimea.

As ſoon as the ſmall locuſts acquire wings, after parting with their laſt ſkins, they progreſſively diſperſe themſelves, but ſtill fly about in large ſwarms: even the young ones in the laſt period of their metamorphoſis, no longer ſtrictly adhere to their route; ſometimes wandering in a retrograde, ſometimes in a lateral direction, and purſuing different courſes. On attaining their perfect ſtate, they begin to pair: the males die ſhortly after; but the females ſtill continue their depredations in the months of July and Auguſt, till they have depoſited their eggs; when they ſpeedily diſappear. The deficiency of ſtarlings, as well as of other birds preying upon inſects, which have greatly diminiſhed in the Crimea, affords but a diſtant hope that the myriads of this noxious breed will be leſſened; unleſs Nature ſhould check their increaſe by other means, and again reduce their numbers, ſo that they may become leſs detrimental to vegetation.

It is a fortunate circumſtance for the vineyards of Crim-Tartary, that the *Curculio Bacchus*, which is ſo deſtructive to

other places, has hitherto been rarely obſerved in that country*. Crows, magpies, and other birds which are ſo injurious to the grapes in the vicinity of Aſtrakhan, are here leſs frequent. On the other hand, great damage is occaſioned by the grey hares, which are very numerous and bold: during the winter, they not only bite off the ſhoots of the young vine-layers down to the loweſt knot, as if they had been cut with a knife, and ſtrip the young fruit-trees of their bark; but alſo devour and ſpoil large quantities of ripe grapes. The mature fruit is likewiſe eaten with avidity by dogs, which, at the time of vintage, are not ſuffered to enter the vineyards; by badgers, foxes, hedge-hogs, that are very large in the Crimea, and by partridges. Laſtly, in dry years, extenſive miſchief ariſes from the innumerable waſps infeſting theſe regions.

The vallies of Sudagh and Koos, which afford the beſt wines, yield in proſperous years certainly upwards of thirty thouſand Eimers†, of which at leaſt one-third is ſent to Kherſon, and into the more remote governments, as far as Kurſk. In the year 1784, when the Crimea became ſubject to Ruſſia, the Eimer of Sudagh wine was ſold at the low rate of between fifteen and twenty kopeeks; as the quantity at that time exported was very inconſiderable: in the following years it roſe to forty, and even to fifty kopeeks; in 1792, during the laſt Turkiſh war, to a ruble; in 1793 to a ruble and thirty kopeeks; and, at the cloſe of the war, to a ruble and ſeventy-five kopeeks, nay, even to two rubles. At preſent, it is ſold

* According to Sparrmann, a ſmall *Curculio* of this ſpecies commits great depredations, during the ſpring, on the vine-buds at the Cape of Good Hope.

† The Ruſſian Eimer contains ten quarts, or Tartar Occas.

for

for a ruble and a half, or from one hundred and fifty to one hundred and eighty kopeeks. The wines of Koos and Tokluk generally produce twenty kopeeks leſs than the former: and thoſe of Taraktaſh and Katſha are about one-third cheaper. The inſipid wines of Kutlak and of the Alma, which are ſcarcely potable, when kept till the month of May in the following year, are now ſold at from ſixty to ſeventy kopeeks the Eimer; becauſe they may be purchaſed earlier in autumn, and are more ſpeedily clarified; the whole ſtock of theſe liquors being in general exhauſted before the return of ſpring.—Formerly, the Tartars prepared large quantities of *Bekmeſs*, or marmalade, and *Miſſeleſs*, or ſyrup, from their grapes. But the ſale of the wine and fruit is at preſent found to be more profitable; and almoſt every proprietor has begun to diſtil brandy from the lees, which are ſuffered to ferment in vats, or in pits well covered and plaiſtered with clay: the lees, obtained from one hundred Eimers of wine, generally yield four Eimers of brandy.

With a view to afford due encouragement to the cultivation of the vine in Crim-Tartary, and in other ſouthern provinces of Ruſſia, not only an increaſe of population is neceſſary; but alſo the foreign wines (which are partly imported through the harbours of the Black Sea, and partly from Moldavia, by the Dnieſtr) ſhould, for ſeveral ſucceſſive years, be charged with higher duties, in order to raiſe the price of native wines, and to enable the land-owners to plant new vineyards; as they require to be cultivated and tended for at leaſt five years, before they yield the ſmalleſt profit to the proprietor. By ſuch means, I am convinced, that, in the courſe of fifteen or twenty

twenty years, the culture of the vine would attain to ſuch a flouriſhing ſtate in the ſouthern provinces, that all the interior governments of the Ruſſian empire, as far as Moſco, and even beyond, might be ſupplied with good and wholeſome wine of our own produce, inſtead of the pernicious and adulterated foreign liquors; for which, in St. Peterſburgh alone, not to mention the other ports of the empire, we annually pay upwards of a million and a half of rubles, in the balance of trade.

Experience has already proved, that the vine may be ſucceſsfully raiſed on the banks of the Volga, as far as Tzaritzin; on thoſe of the Don, as far as the Medveditza; of the Donetz, beyond Tſhuguyef; of the Dniepr, beyond Kiov; of the Bug, even to Olviopol; and in all the ſouthern regions. But, in order to produce good wines, the cultivation ought not to be extended on the Don, above the line of Tzaritzin; nor, on the Donetz, above the mouth of the Lugan; and on the Dniepr, not beyond the line of the Ukraine. The countries, beſt adapted for the three moſt valuable products of a ſouthern climate, ſilk, cotton, and wine, are thoſe in the vicinity of the Terek, the Kuma, the Sarpa, and Lower Volga; the Lower Don, the Mius, the Krinka, the Yelantſhik, the Kalmius, the Berda, the Konſkaya, the Moſkovka, the Samara; the Voltſhie Vody, which falls into the Samara; the Ingul and Inguletz, the Lower Bug, the Kneſtr, and laſtly, the whole Crimea; where, for ſuch purpoſe, it will be ſufficient to ſelect the diſtricts according to their ſituation, and the nature of their ſoil. Admitting, however, that ſome tracts ſhould not yield wine of the deſired quality, it might ſtill be employed in the diſtillation of brandy,

and

and in the preparation of vinegar; or the grapes might be dried, and thus ſweetened in ovens.

Although the ſituation of the high grounds, near the Sea of Azof, appears to be favourable, yet theſe are not propitious to the culture of the vine, being too much expoſed to cold winds and fogs; beſides, they are too dry, and the low grounds are too moiſt, and impregnated with ſaline particles. In the vicinity of fens and foreſts, the night-froſts occurring in the month of May frequently prove detrimental to the bloſſoms.

Vines are ſtill reared as far as Baturin, nay even in Glukhov; but they ſeldom bear fruit, unleſs in well-ſheltered ſpots, becauſe the vernal night-froſts injure their bloſſoms, as well as thoſe of peaches and apricots, ſo that the grapes ſeldom attain to maturity. Such is likewiſe the caſe on the line of the Ukraine, and even in the neighbourhood of the monaſtery of Svätogorſki, which is ſituated nearly forty verſts in a more ſoutherly direction than the line on the banks of the Donetz. On the whole, it appears that throughout the Ukraine, which lies to the North of the laſt-mentioned line, the culture of the vine cannot be introduced with advantage. It would, however, be erroneous to judge in this caſe from the provinces of Germany ſituated in a ſimilar latitude; as the temperature of the Ruſſian Governments greatly differs from that of the former. Thus, at Tor and Bakhmut, night-froſts occur in the middle of Auguſt, nay, ſometimes as early as the 12th of that month, ſo as to cauſe buck-wheat, the *Solanum*, and *Stramonium*, to wither. The mulberry-tree reſiſts the froſts in a far more northerly region, as is evinced by the uncommonly beautiful plantation belonging to the Crown at Beleſkaya-Krepoſt, and containing nearly

nearly two thouſand trees; likewiſe by another ſtill more numerous in the vicinity of Kiov, where they attain to a larger ſize. This tree is even raiſed at Glukhov; and, in more northerly diſtricts, where it might not be able to withſtand the ſeverity of the winter, it could be cultivated as bruſh-wood: for, beneath the ſnow, the lower buds of the branches would not be nipped by the froſt, and would furniſh a ſufficiency of annual ſhoots to ſupply the ſilk-worms with food, if the people were inclined to apply themſelves to the rearing of thoſe uſeful inſects.

V.

ON THE ORCHARDS OF THE CRIMEA.

The orchards of Crim-Tartary bear great reſemblance to the gardens of the German farmers. Trees irregularly ſcattered, and a fine ſward, which may be watered by means of canals, conſtitute their chief ornaments. They generally occupy the low-grounds along the brooks and rivers, and are planted in vallies that are provided with a ſpring. From the antiquity of the trees in the mountains, eſpecially thoſe of the walnut, it is evident that they are moſtly old plantations, formed by the Greeks and Armenians: for few of the indolent Tartars are diſpoſed to undertake the toil of preparing the land, and of planting new orchards. For this reaſon alſo, ſcarcely a trace of gardens occurs in the champaign country, formerly uninhabited. The Tartar mountaineers, however, attend to their gardens;

gardens; ſtir the ſoil around the trees, which they clean, manure, and irrigate, and thus endeavour to derive profit from their induſtry. But they cannot depend upon a good fruit-harveſt oftener than every third or fourth year; for, generally after a premature ſpring which brings out the bloſſoms, either a late froſt ſucceeds, or dry, fetid miſts not unfrequently ariſe from the ſea, and deſtroy all hopes of the ſeaſon.

The inoculation of trees is little known among the Tartars and Greeks: hence it cannot be expected that they ſhould raiſe good peaches and apricots; as theſe cannot be propagated by engrafting. But, in the laſt-mentioned operation, they are uncommonly ſkilful; and no method can be better contrived, than that now practiſed, eſpecially in the neighbourhood of Bakhtſhiſarai: it conſiſts in grafting into the roots to the depth of nearly a ſpan beneath the ground, in conſequence of which the ſtems are not only kept in a much more healthy condition, but in the courſe of time the graft alſo ſpontaneouſly ſtrikes root, and becomes more hardy.

The beſt ſorts of fruit in the Tauridan orchards are pears, apples, quinces, and plumbs: the cherries are but indifferent; peaches, apricots, and other kinds of fruit, are of ſuch a quality as might be expected from their preſent mode of culture.

Of *Pears*, the Crim-Tartars have ſeveral varieties; among which, thoſe called by the Ruſſians *Duli*, (being thicker in the middle than at the top), are particularly excellent for their tender and juicy pulp.—Of theſe I ſhall firſt mention the large pears, *Boſdurkhan*, *Mullahti-Armud*, *Sultan-Armud*, *Kök-Sulu*, and the late pear *Albuſan*: next in quality are the muſk-pears, *Miſk-Armud*, which ripen as early as the month of June,

and that called *Aſhrapai*. A ſmall round ſort, which attains to maturity at the ſame time with the May-cherries, is therefore termed *Kiräs-Armud*, or the Cherry-pear, not to mention other ſorts, ſuch as the *Ball-Armud*, *Ak-Armud*, *Khayar-Armud*, or the Cucumber-pear, *Bey-Armud*, or the Princes-Pear, &c.

There is likewiſe a conſiderable variety of *Apples*. The moſt celebrated are the *Sinap-Alma*, or Apples of Sinap, of which numerous waggon-loads are conveyed every autumn to Moſco, and even as far as Peterſburgh; where they are ſold at a high price. This apple has a peculiar oblong form, with ſcarcely any depreſſion at the ſtalk, and is valuable not only on account of its beautiful appearance and fine flavour, but alſo for its durability, as it may be preſerved till July in the ſucceeding year, without decaying or becoming wrinkled; at which time its flavour is in the higheſt perfection. It is hardly eatable before the new-year, and in ſize does not exceed the German Borſdorf-apple. The next, in point of excellence, are the *Tſhelebi*, which ripen early, but ſoon loſe their flavour; beſide other kinds of various ſizes, moſt of which attain to maturity early in the ſeaſon.

The Tartars have three ſorts of *Quinces*. Two of them differ in the time of ripening, being called Summer and Winter-quinces: the latter are of a ſmaller ſize. But, the third ſort forms a large trunk, and has ſomewhat broader leaves than the two preceding: it is chiefly remarkable for the ſize and mildneſs of its fruit. Theſe quinces (which are alſo cultivated along the Caucaſus) may be eaten in a raw ſtate, as they poſſeſs no aſtringency. The Tartars denominate this fruit *Haiva*.

Beſide

Beſide the common, ſmall black *Plumb* there is a very peculiar kind reſembling the ſloe, being round, and adapted for drying; farther, a ſmall red plumb, termed *Al-Erik;* the large yellow Egg-plumb, or *Sara-Erik;* and the large violet Brignole, or *Dſhan-Erik.*

Among the different cherries, the Tartars have the *Viſhnä*, or common ſour cherry, and a larger Anatolian variety of it, which greatly multiplies from the root; farther, an early yellow and red cherry; a ſimilar fruit, termed *Al-Kiräs*, which is of a brighter red colour, ſomewhat later, and alſo grows in the woods; next, the black heart-cherry, *Kara-Kiräs*, or *Targana-Kiräs;* and eſpecially a pale, wax-yellow, ſemi-tranſparent, large cherry, called Ak-Kiräs; which is by no means common in the orchards of the Crimea; nor have I ever ſeen it in thoſe of other countries. This variety has the advantage, that, notwithſtanding its delicacy, it may be ſuffered to remain on the trees, from June till Auguſt.

I have already obſerved, that no good ameliorated ſorts of other ſtone-fruit are to be found in Crim-Tartary: *Sheffala*, or Peaches, and *Serdaly*, or Apricots, are for the moſt part indigenous productions: of the former, there is a variety, with a yellow, and another having a white pulp. In Alupka only, we met with ſome trees bearing large fruit. Small, ſweet almonds, or *Badem*, are rarely cultivated.

Medlars, or *Muſhmula*, are very frequent in gardens, and alſo occur in the woods, apparently in a wild ſtate. The Tartars graft them upon quince-ſtocks; by which operation they attain to a larger ſize. This abundant fruit is put into vats, and water poured upon it: after ſuffering the infuſion to

ferment throughout the winter, it affords an agreeable beverage of a ſubacid, vinous taſte.

The ſervice-tree, or *Yuväs*, *Sorbus Domeſtica*, is very common in all the mountains, and forms a large tree, that is equally beautiful in its foliage, cluſtered bloſſoms, and fruit. There is a leſs numerous variety of it, producing large and entirely red fruit: the berries of the different ſorts are uniformly pear-ſhaped. The wood of this tree is of a fine red colour; being uncommonly hard, and alike excellent for cabinet-makers' and wheelwrights' work.

The cornel cherry-tree, or *Kyſiltſhak*, is likewiſe common in the woods and in orchards; but in the latter, eſpecially on the banks of the Salgir and the Katſha, there is a ſort bearing much larger fruit. This low tree frequently bloſſoms in February and March, nay, often in January; in which caſe the vernal froſts generally deſtroy the cherries. Its ſtems are often cut down, and employed as props for vines; the ſhoots of which thus extend to a conſiderable height. The fruit is gathered in large quantities, and is ſuffered to ferment, for the purpoſe of converting it into brandy; but, if the ſtones be put into the ſtill, they impart a diſagreeable flavour to the ſpirit.

The *Lotos* (*Kara-Kurma*) or *Dioſpyros*, grows only in the ſouthern dales, both in a cultivated, and in a wild, or degenerated ſtate: for it does not appear to be indigenous. The ſame obſervation is applicable to the *Celtis Orientalis*, or *Karkaſs*; the fruit of both being eaten by the Tartars.

The pomegranate-tree, or *Nar*, is alſo found only in the ſouthern vallies, and ſeems to have been originally introduced among the orchard-trees, though it has in a few ſituations propagated

pagated itſelf by ſeed, on the ſtony declivities of thoſe warm dales, where it bears a diminutive juiceleſs fruit. In a ſimilar manner, the olive-tree, or *Seitun-Agatſh*, is frequently planted in gardens, arranged in rows, and thus produces conſiderable trunks; but it likewiſe occurs in many places between the rocks as a wild ſhrub. The ſame remark applies to the fig-tree, or *Indſhir*, which is more frequently diſcovered in a wild ſtate; though, in the orchards, it preſents three varieties of fruit; namely, the ſmall white fig, a brown fig of the ſame form, and laſtly, a larger brown fig of an oblong ſhape. During the laſt two ſevere winters, the fig-trees were moſtly frozen above ground.

The introduction of the laurel muſt alſo be aſcribed to the Greeks: it has become naturalized chiefly in the valley of Alupka, where it grows among the rocks, producing fine trees. The Tartar inhabitants of this dale have imbibed a notion, that the travellers who ſometimes viſit the ſouthern coaſt of the Crimea, are attracted thither ſolely by the laurel, and on that account have commenced its extirpation with ſavage induſtry.

There are three ſorts of mulberry-trees, *Dut* or *Duſhi*, in Crim-Tartary; the white, the common black, and a foreign kind: the laſt is apparently a diſtinct ſpecies, and differs remarkably from the two former, both in its thick, ſtrong leaf, which frequently reſembles that of the fig, and alſo in its fruit. Its berry is nearly as large as that of the common plumb, of a pleaſant acidulous taſte, being more ſavoury than the other ſorts, and affording a very wholeſome repaſt. It produces large, knotty trees, with ſingularly curved ramifications, and the wood of which

which has a very deep citron colour. The Tartars denominate this ſpecies of mulberry *Stambul Duſhi*, and prepare from it a ſtrong vinegar.

Walnut-trees, or *Dſhiväs*, are frequent in all the orchards of the ſouthern vallies, occaſionally of an enormous ſize; and their fruit is conveyed in large quantities to Ruſſia. Walnuts are among the moſt profitable products of the country, as they are ſold at the rate of eight kopeeks, and often as high as a ruble per thouſand. In favourable years, many trees bear from ten to fifty or ſixty, nay, even one hundred thouſand nuts. The large thin-ſhelled ſpecies occurs but rarely. The wood is employed in the Crimea principally for cabinet-work.

There are three ſorts of hazel-nuts, or *Funduk*, in Crim-Tartary; namely, the common ſort is frequent in orchards and woods, the timber of which is uſed for hooping caſks, and for poles ſerving to ſupport the felt-huts of the Nagays; the oblong Lambert-nut, or *Baden-Funduk*, which forms much larger buſhes; and laſtly, the *Corylus Colurna*, or *Trebiſond-Funduk*, with ſhort, obtuſe nuts of an uncommon ſize, the extenſive buſhes of which are likewiſe raiſed excluſively in orchards.

Only two cheſnut-trees, or *Kaſtan*, grow in the Crimea, as I have already obſerved. Theſe ſolitary trees ſtand in the gardens near the village of Derekoi, and almoſt every year produce fruit of a diminutive ſize: it would, however, be eaſy to propagate the cheſnut in the vallies bordering on the mountains.

VI.

ON THE FOREST-TREES AND SHRUBS OF THE CRIMEA.

In the ſouthern mountainous diſtrict of Crim-Tartary, eſpecially upon the more ancient chain of hills, conſiderable foreſts are ſtill in exiſtence. The modern calcareous eminences for the moſt part produce only low wood or ſhrubs, except along the banks of rivers and brooks: ſuch diminutive ſize muſt probably be attributed to the ſuperficial covering of the ſoil with vegetable mould. On the contrary, the dales between the loftier mountains are interſperſed with enormous oak, as well as red and white beech-trees, which are equally uſeful in naval and military architecture.

Among the evergreen trees in the Crimea, the moſt conſpicuous are the ſea-pine, or *Pinus maritima*, (in the Tartar language *Tzaam*), and two ſpecies of juniper. The former grows chiefly on the weſtern part of the high chain of mountains along the ſea-coaſt, as far as Yalta and Aluſhta. The largeſt beams obtained from it are about two and a half, or at moſt three fathoms in length. Its wood is durable, reſinous, but very knotty; on which account it cannot be ſawn into good planks. Its reſin may be collected in large quantities; has a pleaſant odour; and is employed in fumigations, like that of the mountain-pine procured from Moldavia. Its larger cones clearly prove, that this pine is a peculiar ſpecies. I have found, on the ſea-coaſt, a kind of pine-cones that were of an intermediate ſize between theſe and the cedar-cones, and which certainly belong to ſome Anatolian or Caucaſian pine.

In

In the foreſt, through which the horſe-road leads from the Yaila down towards Kokos, I remarked ſome iſolated, rather young pines of the common ſpecies (*P. ſylveſtris*), that do not occur in any other part of Taurida, and the origin of which it is difficult to explain. They were about ten or twelve in number; and in the ſame diſtrict I have ſeen the only wild Service-tree growing in the Crimea.

Of junipers, there is one bearing red, and another producing black-berries. The former ſeems to be the *Juniperus Oxycedrus:* it grows only as an inferior tree or bruſh-wood, in a ſtony ſoil, frequently in the open plain; has leaves like thoſe of the common juniper; and bears large red berries, divided into three protuberances, which do not acquire that colour till they ripen in the following ſpring, when the tree is again in bloſſom. The other, denominated *Salma-Kara-Ardytſh*, forms trunks, often more than a foot in diameter, the wood of which perfectly reſembles that of the Bermuda cedar, and poſſeſſes a ſimilar odour. It grows ſtraight like a cypreſs, attains to a moderate height, and the trunk may be lopped, after which it ſhoots forth new branches. The green twigs are like thoſe of the ſavin; the berries are large, of a black colour when ripe, and covered with a bloom of a blueiſh caſt.

To the trees above enumerated, the Yew ſtill remains to be added: it acquires a conſiderable height and thickneſs in the clefts and vallies of the Alps or Yaila, where it is by no means rare.

The following umbrageous trees occur in Crim-Tartary:

1. Two ſpecies of oak, or *Peled;* the common, and the grey dwarf oak, or *Cerris*, with acutely indented leaves and

and tubercular acorn-cups; which flouriſhes chiefly in ſtony mountains, and, in conſequence of the goats browzing upon it, often appears of a very low and ſtunted form. Hence its trunk ſeldom exceeds the thickneſs of a man's thigh: its wood is uncommonly hard, and of a dark-brown colour.

2. Two kinds of Beech, or *Kok-Agatſh*; namely, a larger ſort, twelve feet in circumference; and a ſmall ſpecies, the branches of which nearly touch the ground, having diminutive leaves, and delighting in a rocky ſoil: it covers whole mountainous tracts, even thoſe of calcareous marl, and never acquires a ſtrong or lofty trunk.

3. The Beech, or *Byk*; which, in many parts of the higher mountains, forms thick groves of ſtraight trees; and, where it grows in a leſs crowded ſtate, frequently has a trunk two yards in circumference.

4. The Dwarf-Elm (*Kara-Agatſh*, or Black Wood) is a very common tree in woods, hedges, and gardens: its roots, like thoſe of the dog's graſs, ſpread beneath the turf, and in every direction produce new twigs; ſo that its ſhrubs prove in many places injurious to the vineyards and orchards, eſpecially in the valley of Sudagh. Theſe young ſhoots appear in two different forms: they either grow ſlender, with thin ſmooth rods, ſuch as are obſerved in old trees, and generally in the ſhape of a fan, with the extremities ſomewhat curved, reſembling the feathers of a bird's wing: or, they are ſhorter and more ſtunted; all the twigs, being longitudinally ſtreaked to

the very point, in a ſimilar manner with thoſe of the cork-tree. The dwarf-elm bloſſoms at the ſame time as the cornel-tree, and wild crocus: it appears to be totally different from that of Siberia, which I have formerly deſcribed*. It ſeldom produces trunks exceeding one foot in diameter: the leaves are frequently covered with large, hollow excreſcences, of the nature of gall-nuts, which are occaſioned by ſmall flies. It may be lopped, as well as the common elm, to which it bears an affinity, and forms a new head within the ſpace of two years.

5. There are four ſpecies of Poplars in the Crimea; namely, the White and Black Poplar, (*Kavak-Agatſh* and *Adſhirek-Agatſh*,) frequently occurring on the banks of rivers and brooks; the Trembling Poplar, or Aſpen-tree, (*Ak-Agatſh*,) on the woody declivities of the high mountains; and the Lombardy Poplar, introduced from Italy, to which the Tartars have given the Turkiſh name of *Sälvi*, appropriated to the cypreſs. The laſt mentioned ſpecies is planted during the ſpring, by means of poles, in gardens and near villages, along brooks and canals. As ſoon as the trees begin to thrive, they are ſometimes cleared of all their ſhoots; when they ſpeedily form the moſt beautiful pyramidal heads, and attain to an aſtoniſhing height: but, notwithſtanding their ſolitary and frequently expoſed ſituation, they have never been obſerved to be ſhivered by lightning, broken by violent

* *Flora Roſſica*, Vol. I. p. 76. *Tab.* 48.

ſtorms,

ſtorms, or torn out of the ſoil. Their long and vigorous roots run by the ſide of ditches to a great diſtance, with extenſive ramifications, and ſometimes make their way into wells. Their wood is extremely hard, but not durable when expoſed to moiſture. They are never found in a wild ſtate; and, though they are frequently, and even annually, in bloſſom, producing woolly catkins, no young plants have been remarked to ariſe from its ſeed, ſuch as may be reared from that of other poplars.

6. The Linden-tree, or *Ukee-Agatſh*, as well as

7. The Maple, or Plane-tree, (*Kürütſh-Agatſh*,) is found only in mountainous foreſts. More frequent is the Common Maple, or *Acer campeſtre*, by the Tartars called *Kaſhik-Agatſh*, or Spoon-tree; becauſe its wood is excellent for being manufactured into ſpoons.

8. There are two kinds of Aſh in Crim-Tartary. In the cold vallies are found large trunks of the common ſpecies, but in the warm ſouthern dales, the Manna-Aſh, or *Javur*, is abundant. The latter grows ſtraight and handſome, with a beautiful head: its root deſcends deep into the earth, has many ramifications, and is ſo firm, that it cannot eaſily be deſtroyed either by the axe or by fire: the knots are peculiarly adapted for the naves of wheels, and its ſtrong wood is often elegantly veined. Although both the large and the ſmaller manna-locuſts, in the Tartar language *Orakſi*, are equally numerous, yet no traces of manna have been diſcovered on this tree.

9. Some kinds of Hawthorn, eſpecially that with black fruit, and almoſt deſtitute of thorns, (by the Tartars called *Budaut-Agatſh*): it forms large, ſtrong trees, with very hard, wood, in the mountainous foreſts, and along the borders of gardens. There are, beſides, as I have already mentioned, a variety with browniſh, oblong berries; another with large red, and the common kind, or *Oxyacantha*, with ſmall red berries; which, in the Tartar tongue, are denominated *Yapuſhkan* and *Kutſher-Agatſh*; farther, the *Cratægus Aria*, *torminalis*, and *orientalis*; bearing great reſemblance to the Neapolitan medlar-tree, and being frequent both in the woods and in the abandoned orchards of the ſouthern vallies.

10. Of wild fruit-trees, the following ſorts occur in the Crimean woods; viz. early and late apples, or *Atſhi-Alma*; early and late pears, or *Kertmé*; and the pear with an olive-ſhaped, woolly leaf, (*Aſhlap* or *Pyrus Orientalis* *,) the bloſſoms and fruit of which grow in cluſters; three ſpecies of cherries; the common ſour kind; a light-red, ſweet cherry, produced by a lofty tree; and laſtly, the *Mahaleb* cherry, from a tree having veined wood: it is common at road ſides, in the hedges of gardens, and occaſionally in woods; when the trunk is felled, it diffuſes, for a conſiderable time and to a great diſtance, an agreeable odour reſembling that of bitter almonds, and which the wood alſo retains for a long period. This wild, bitter cherry, (which the

* *Pyrus ſylveſtris orientalis, folio oblongo incano Tournefort. Coroll. p.* 43.; apparently the ſame with the *Pyrus nivalis* of Jacquin. *Flor. Auſtr. p.* 4. *Tab.* 107.

Tartars

Tartars denominate *It-Kiräs* and *Topek-Kiräs*, or dog-cherry,) is the principal fruit, uſed in preparing ratafia and cherry-brandy.

11. Wild Plumb-trees, or *Erik*, are not ſo common in the woods as the preceding. On the other hand, the Sloe, or *Kögem-Agatſh*, grows with great luxuriance in all open ſituations. Other fruit-trees, which are likewiſe found in a wild ſtate, have already been mentioned.

12. The Turpentine-tree occurs chiefly in the ſouthern vallies, in the vicinity of deſerted or at preſent occupied dwellings, and may perhaps be an exotic; but, in ſome places, it grows in great abundance, with ſhort trunks of the thickneſs of a man's body; and the wood of which reſembles guaiacum, both in weight and colour.

13. The Strawberry-tree, or *Kyſil-Agatſh*, thrives, as I have before ſtated, only on ſteep rocks, expoſed to meridian rays, along the ſouthern ſhore. This tree is more valuable on account of its beautiful appearance, with its expanded blood-red branches, evergreen foliage, and numerous bloſſoms, as well as its fine wood, than for its fruit, which is here deficient in juice.

In the mountains and their foreſts, I found the following low ſhrubs:

14. The ronnd-leaved Alder, or *Dſherk-Agatſh*. It ſeldom attains a remarkable height.

15. Two ſpecies of the Spindle-tree; the larger of which, on account of the reſemblance its wood bears to that

of the box-tree, is by the Tartars called *Keeyk-Shemſher-Agatſh.*

16. The Water-Elder, or *Opulus*, is thinly ſcattered in the woods.

17. The Wayfaring-tree, or *Lantana*, is by the Tartars denominated *Kirmyſhak*, or *Tarak-Agatſh.* From its wood they generally manufacture the tubes of their tobacco-pipes, which are alſo in great requeſt among the tobacco-ſmokers of Ruſſia and Germany, where they are known by the name of *Gordina* or *Gordovina.*

18. The Wild Roſe (*It-burun* or *Yapan-güll*), of which there are here two ſpecies, beſide the *Roſa pygmea;* namely, the *Roſa ſpinoſiſſima*, a ſmall one with a white bloſſom; and a red one, which grows at the ſides of brooks, ſometimes attains the height of one fathom and a half, or even two fathoms, and forms ſtems about one inch in thickneſs.

19. The Privet, or *Liguſtrum* (*Birügos*), is equally frequent in woods, as well as in and about gardens.

20. The Wild Cornel-tree, or *Cornus ſanguinea*, in the Tartar language *Tſhyuma-Agatſh.*

21. The Wild Vine, the trunk of which is often as thick as a man's arm; and which, with its extending ſhoots, ſometimes exceeds ten or fifteen fathoms in length.

22. The Virgin's Bower, or *Vitalba*, (in the Tartar tongue *Tſhermavuk*,) twines itſelf around trees like the twigs of the preceding plant, and at length ſtifles their growth. It is well calculated for arbours, and its bloſſoms diffuſe a very agreeable odour.

The

23. Ivy, which however ſeldom produces a conſiderable ſtem.

The ſhrubs growing in more open ſituations, are:

24. The Chriſt's-thorn, or *Paliurus*, which the Tartars call *Teken*, and the Ruſſians, on account of its barbed branches, *Derſhi derevo*. It is common in dry, ſtony diſtricts and mountains, and is very uſeful for conſtructing ſlight hedges.

25. Two ſpecies of Tamariſk, (*Tamarix Germanica* and *tetrandra*); flouriſhing in the beds of rivers.

26. A weak ſpecies of Willow*.

27. The Berberry, or *Khadym-Tuſluk*; and

28. Bramble-berries, or *Burulgen*, growing in the incloſures of gardens, and on the banks of rivulets.

29. The Elder, or *Eſki-Agatſh*, (alſo called *Kavall*, and *Mirver-Agatſh*,) which, with its variety the *Ebulus*, frequently occurs in the neighbourhood of villages, and in gardens.

30. The Sumach, or Tanner's-tree, (*Sary-Agalſh*); the acid, red berries of which form an ingredient in the preparation of animal food: its deep yellow wood is likewiſe uſeful. The whole plant is excellent for tanning, but it thrives only in the ſouthern vallies.

31. The *Cotinus*, or *Dſhufut-Yaprak*, (that is, the Jew's leaf; becauſe the Jews particularly employ it in tanning morocco,) is alſo frequent on the northern ſide of

* The *Babylonian Willow*, though not indigenous in Crim-Tartary, thrives there uncommonly, as well as the *Oriental Plane-tree*, the *Laurel-Cherry*, the *Jujuba*, and *Great Mimoſa*.

moun-

mountains, and on open eminences; where it forms round ſpreading buſhes.

32. The Medlar-thorn, or *Pyracantha*, (*Skaitan-Teken*, or devil's thorn,) is very common on ſtony mountains, where it ſpreads widely over the ſoil.

33. The *Meſpilus Amelanchier* is of the ſame family as the former, but occurs more rarely.

34. The Judas-tree, or *Cercis ſiliquaſtrum*, is alſo ſcarce.

35. The Grey Spiræa, or *Spiræa crenata*.

36. The Yellow Jaſmine, or *Jaſminum fruticoſum*.

37. The Spaniſh Lilac, or *Irgyvan*, grows in many gardens, and is probably an exotic; as well as,

38. The Italian Honey-ſuckle; which is found in ſome places, eſpecially in the neighbourhood of the Burultſha.

39. The *Coronilla Emerus*.

40. The *Colutea arborea*.

41. The Saltpetre-wort, or *Nitraria*.

42. The Caper-buſh, or *Shaitan-Karbus*.

43. The high-branching *Salſola ericoides*; and, laſtly,

44. The *Aſtragalus Poterium*, or baſtard buckthorn of the Crimea.

VII.

OF THE PLANTS USEFUL FOR ECONOMICAL PURPOSES.

I have already, in another work, communicated a catalogue of the native plants of Crim-Tartary, to which I have only to add

add the *Lathraea Phelypaea*, occaſionally occurring near the banks of the Salgir; the *Aegilops incurvata*, that has been obſerved in various places, on dry eminences; the honey-ſuckle; and ſome other common vegetables. I ſhall therefore briefly notice ſuch plants as are applicable to economical uſes.

No nation is better qualified to inſtruct us in the nature and properties of eſculent vegetables, than the Greeks; who are compelled by the ſtrict faſts of their church, eſpecially in the ſpring, to ſearch for every edible root and herb. Thus, they eat the thick roots of ſome abundant ſpecies of *Scorzonera;* of the very common *Ornithogalum piloſum;* of the *Lathyrus tuberoſus*, *Chaerophyllum tuberoſum*, and *Hordeum bulboſum*, which laſt is known to the Tartars under the name of *Gerr-Funduk*, or earth-nuts; farther, the ſprouts of the wild mountain-aſparagus; of the *Siſymbrium Loeſelii*, and of the *Crambe orientalis*, which laſt greatly reſembles brocoli; and the ſtalks of a ſpecies of *Heracleum*, by the Tartars called *Baltrakan;* the young leaves of the *Rumex Patientia*, and of the gooſe-foot, or wild orache; of the vine; the berberry-buſh, and even of the acrid *Arum Maculatum;* alſo the corn-ſalad, or *Valeriana Locuſta*, that ſprouts early in the ſpring; brook-lime, thriving in running waters throughout the winter; wild purſlane; dandelion, while it is germinating; wild celery; common wild garlic, or *Allium deſcendens;* and ſeveral others. Of the caper-buſh, they eat not only the young ſhoots, greatly reſembling aſparagus, but likewiſe the buds, fruit, and every other eatable part of that ſhrub. I have not, however, obſerved that they make uſe of the ſea-cabbage, though they are well acquainted with the *Crithmum*, the genuine rock-ſamphire of the Engliſh.

There is an abundance of vegetables in the Crimea, affording excellent food for cattle, and conſiſting not only of a great variety of graſſes, but alſo of the beſt vegetables recommended for artificial meadows; for inſtance, the white and yellow melilot; the white mountain and baſtard trefoil; hop-clover; the large red trefoil; ſeveral kinds of medic, ſuch as the Swediſh and common lucerne; the *Eſparſette* of the French; various fine ſpecies of vetches; the *Lotus* and *Coronilla;* the common goats'-rue, or *Galega*; the common burnet ſaxifrage, or *Pimpinella Saxifraga;* the *Poterium Sanguiſorba*, or upland burnet, *&c.* The mountains, as well as the champaign country, preſent good paſture for ſheep; and, in ordinary winters, the flocks are ſuffered to remain in the fields. Camels find rich food in the *Centaurea ovina Kali*, and other prickly plants; nor is there any ſcarcity of ſeeds for feeding poultry.

Of plants uſeful for dyeing, Crim-Tartary produces, in a wild ſtate, madder; ſome fine ſpecies of mountain gooſe-graſs; woad; dyers' green-weed in great abundance; and, on the ſouthern coaſt, even the litmus, or *Croton tinctorium:* the ſaf-flower ſucceeds uncommonly well in gardens. The genuine oriental ſaffron might alſo be cultivated with advantage: of the four indigenous ſpecies of crocus, two of which produce their beautiful bloſſoms in the ſpring, and two in the autumn; but none yields the real ſaffron. The ſeeds of the great peonies are ſurrounded with a red pulp, the juice of which affords a fine and durable purple dye.

For tanning, the Tartars poſſeſs valuable plants in the Sumach and *Cotinus.* They might, however, alſo make uſe of the tamariſks; the dwarf grey-oak; the ſmall horn-beam tree, which

which covers whole mountains; the roots of the *Statice coriaria;* wild ſage; and the *Vinca*, or perriwinkle. In fact, no branch of manufacture promiſes to be more lucrative to the inhabitants of the Crimea (which ſupports very numerous herds of cattle) than tanning; as the Turkiſh harbours preſent a certain and profitable mart for all ſorts of prepared leather.

Among the plants delighting in a ſaline ſoil, there is an abundance of the different ſpecies of ſaltwort, not only on the Crimean coaſt, and around the lakes; but alſo in every ſituation, where the earth is in the ſlighteſt degree impregnated with ſalt or nitre, the *Atriplex laciniata* grows in profuſion: from the latter plant, ſeveral Greeks have acquired the art of burning excellent Soda, or *Kallia;* which is exported to Conſtantinople, and even to the more diſtant maritime towns of the Mediterranean.

Numerous medicinal plants, which are at preſent obtained from the Levant and Greece, might be cultivated in Crim-Tartary; where many of them are already indigenous. Among other natural productions, genuine turpentine might here be collected. The *Convolvulus Scammonia;* peonies, the roots of which are very aromatic; the *Belladonna;* together with thoſe ſalutary herbs in fevers, the *Chamaedrys*, *Chamaepithys*, and *Scordium;* rue and ſage; balm; Pontian wormwood; *Dictamnus albus; Ruſcus*, and other officinal plants, grow in abundance on the mountains, and are very efficacious. Beſide other marine vegetables flouriſhing on the rocky and ſtony banks in the ſea, there occurs the peculiar worm-herb employed by the Greek apothecaries; and which they alſo diſtinguiſh by the correſponding name of *Levithochorto.*

VIII.

OF THE TAME AND WILD QUADRUPEDS, BIRDS, FISHES, AMPHIBIOUS ANIMALS, AND INSECTS OF THE CRIMEA.

The rearing of cattle has in all ages been, and ſtill is, the principal employment of the Tartars; though more extenſively in the champaign country than in the mountains. The inhabitants of the hilly regions, beſide ſheep and goats (of which, however, moſt of them are deſtitute) keep in general only one or a few yokes of oxen, that are uſed by them for conveying fire-wood and timber, ready made wheels, and various kinds of wooden utenſils, to the market-towns: they alſo poſſeſs a few cows, and ſeldom more than one horſe, though many have none, except during the thraſhing-ſeaſon. In a few villages, ſituated on the mountains, hairy buffaloes form part of their live-ſtock. On the other hand, in the plains, every village has conſiderable numbers of ſheep and black cattle: all are provided with horſes; and many of them keep camels.

The Tauridan camel has two bunches, as delineated in the twenty-fourth plate: it attains here a larger ſize than among the Kalmuc Tartars; and we obſerved animals of a white and yellowiſh-white, but leſs frequently of a black hue. They are ſeldom uſed as beaſts of burden, but are often yoked to the large four-wheeled waggons, or *Madſhari*, eſpecially on bad roads, and during winter. Opulent Tartars take a pride in conveying their families from place to place, or in travelling to town in covered waggons, drawn by camels. The yoke is placed between their neck and the firſt bunch; and is of a peculiar

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peculiar conſtruction, adapted to the purpoſe. From the hair of this quadruped, the Tartar women of the plains manufacture a narrow cloth, which is uſed in its natural colour, and is extremely warm, ſoft, and light: if it were made broader, it would afford a more lucrative article of commerce. The manufactory at Novoroſſeeiſk, or Ekaterinoſlavl, formerly produced, from the ſame material, a broad cloth, which was much eſteemed. The mild winter of the Crimea is very favourable to the habits and propagation of camels; and theſe quadrupeds are more numerous than is commonly ſuppoſed. In the year 1796, a thouſand camels were bought up in Crim-Tartary for the uſe of the army in Perſia; and they were procured in the courſe of a few weeks, without any remarkable diminution of their number. The price of a full-grown camel is generally from one hundred to one hundred and fifty rubles. In armies, they might be of great utility as beaſts of burden, and alſo be ſerviceable in putting to flight any cavalry, the horſes of which are unaccuſtomed to the ſight of theſe curious animals.

The breeding of horſes is carried on to a conſiderable extent in the plains; many of the Murſes having large eſtabliſhments, and paying great attention to blood. In general, however, there is a deficiency of good male horſes for breeding; nor are they properly managed. In the year 1798, twenty fine ſtallions were ſent from the Imperial ſtables into the Crimea; and they would have been eminently uſeful in improving the breed, had they been ſuffered to remain in the country for a longer time.—The horſes of the Tartars, inhabiting the mountains, are ſmall, uncommonly hardy, and ſure-footed; as they are accuſtomed from an early age to run upon rocks and dangerous

gerous hilly paths; on which account they are ſold at from thirty to ſixty rubles a head; this being a higher price than they are apparently worth.

The horned cattle of the Crimean plains are ſmaller than in the Ukraine; being ſimilar to thoſe of Hungary, often of a grey or black, but rarely of a brown colour: they are heavier and ſlower in their pace than the cattle reared on the mountains, where the breed is ſmall, though ſtrong and ſwift; ſo that the latter delight to trot when harneſſed, and run up and down the ſteepeſt paths with facility. Among the oxen of the mountains, many are of the colour of antelopes; and uſually have a more elegant ſhape and finer limbs.

There are three varieties of ſheep in the Crimea. Thoſe moſt commonly occurring in the plains, are of a middling ſize, generally white or black, ſeldom grey, and ſtill more rarely brown. Like all the Crimean ſheep, they have an elongated tail, which for half its length is overgrown with fat and covered with coarſe wool. In winter, large flocks are driven into the mountains, on the Cherſoneſus, and other places along the ſea-coaſt, where the falls of ſnow are ſlight; ſo that they find a ſcanty ſubſiſtence throughout the winter, and ſhelter themſelves in cavities of rocks, or beneath projecting cliffs. Some Tartars conſtruct regular ſheds of wicker-work (*Koſh*), where the ſheep remain during the night; or they are folded in the fields during the day, on account of their dung, and are driven home for the night. Of theſe animals, the grey ſheep (that furniſhes the celebrated Crimean lamb-ſkins, or furs) is only a variety: they are produced by a peculiar paſture, in the north-weſtern angle of Crim-Tartary, which is by the natives called

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Gessler del.

Medland sculp.

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Medland sculp

called *Tarkhan-Dip*, and by the Ruſſians *Tarkhanſkoi-Kut;* being ſomewhat leſs handſome on the peninſula of the Boſphorus, but ſoon degenerating in other places. A wether of this breed is repreſented in the twenty-fifth, and a lamb in the twenty-ſixth plate. Of theſe handſome grey furs, or *Shmuſhki*, upwards of thirty thouſand are in ſome years exported by the way of Perekop, moſtly to Poland; where they are in great requeſt, and ſold at a high price. They are diſpoſed of, on the ſpot, according to their beauty and greater or leſs abundance, at three rubles and upwards a-piece. They are bought up, chiefly in the ſpring, when many lambs periſh, and are particularly numerous after late froſts and long winters, which prove fatal to many of the young animals in the month of March. The ſheep feed principally upon a ſpecies of *Centaurea*, that is common in the Crimea, forming large round buſhes, with innumerable ſmall flower-buds, by the Tartars termed *Kurai*, or *Bin-Baſh;* for which purpoſe large quantities of it are collected, eſpecially on the *Tarkhanſkoi-Kut* *. Of black lamb-ſkins, more than fifty or ſixty thouſand are annually exported from Crim-Tartary.—Laſtly, the mountain ſheep are much ſmaller than thoſe of the plains, but are celebrated on account of their fine ſoft wool, which bears a higher price, and was formerly imported by the French, to a conſiderable extent. A large portion of it is at preſent bought up for the cloth manufactory at Novoroſſeeiſk; though, notwithſtanding the prohibition, ſome part is ſtill clandeſtinely carried out of the country. It has frequently been propoſed to improve

* See the firſt volume of theſe Travels, p. 538.

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the Crimean breed by the introduction of Spaniſh ſheep; but the commotions of war, the diſtance, and the little maritime intercourſe with Spain, have hitherto prevented the execution of this ſcheme. Nevertheleſs, by means of Spaniſh rams alone, under proper inſpection, and by ſelecting the beſt ewes, a great, if not a perfect, amelioration of the Crimean wool might be effected. Nay, conſiderable advantage might be derived, if the Romelian ſheep from Adrianople (being nearer to us and more conveniently ſituated for tranſportation), or the improved Hungarian breed, were introduced; a plan, which would be attended with a trifling expence. No province of the empire is more favourable to the rearing of ſheep, than Crim-Tartary; nor is any better adapted by nature, eſpecially for ſuch as are not ſtationary; becauſe, in the ſummer, they may viſit the plains and the cool Alpine paſtures of the Yaila, and in winter the ſouthern vallies, that are free from ſnow, or the level tracts along the ſea-coaſt; and, becauſe the winters are in general ſo mild, that they may conſtantly remain in the open air.

The breed of goats is likewiſe conſiderable in the Crimea, particularly on the mountains, and is alſo attended with profit, on account of the dearneſs of the ſkins, which are uſed for the manufacture of Morocco leather. The fine wool, that may be obtained in large quantities by combing them in the ſpring, is not collected by the indolent Tartars. The goats are moſtly ſmall, and ſome of them are diſtinguiſhed by remarkable colours: many are black, with their legs, bellies, and cheeks of a bright yellow; others are uniformly of a flame-yellow, or reddiſh caſt; but thoſe with white hair are very ſcarce. It often happens,

happens, both among goats and ſheep, that two lambs or kids are produced at the ſame time.—The breed of Angora goats might eaſily be introduced into this country: attempts, made for this purpoſe, were attended with ſucceſs; ſo that even the Crimean goats with Angora males frequently brought forth kids with fine hair: they require, however, to be well ſheltered and tended, eſpecially in ſevere winters.

Among the dogs, there is a race of large greyhounds, moſtly with pendent ears and tails; which are particularly adapted for hare-hunting, and, though inferior to the Caucaſian breed, are in great requeſt. They are in general white, grey, yellow, and black, and are great favourites with many of the Tartar Murſes.

Although the Crimea does not remarkably abound with game, yet deer are frequent in the wooded mountains, and grey hares throughout the whole country; ſo that upwards of twenty thouſand hare-ſkins are annually exported by way of Perekop. The majeſtic ſtag is found only in the vicinity of the Tſhatyrdag. Bears have never been ſeen in this country, excepting ſuch as are brought hither by Gypſey bear-leaders. Wolves, on the other hand, together with foxes and badgers, are numerous, eſpecially in hilly diſtricts. Martins are ſometimes caught in the mountains; but the common and ſpotted pole-cats, as well as weaſels (none of which here become white in the winter), are ſtill more rare in the plains. It is remarkable, that, in all the Crimean woods, which ſo much abound in nuts and acorns, not a ſingle ſquirrel is to be diſcovered. The *Suſlik*, or Mountain-mouſe, and the great *Mus Jaculus*, are by no means common in the plains. A ſmall

ſhrew-mouſe inhabits the banks of the Beeyouk-Ouſehen, and is ſeldom ſeen in other places. The large grey houſe-rat, and the common mouſe, multiply rapidly; but the black rat has not hitherto appeared; and of field-mice, we noticed only the common yellowiſh ſpecies.—In the ſea, ſmall ſeals and dolphins are frequent.

Of birds alſo, the Crimea has neither any great variety nor abundance. Eagles never build their neſts here; but the common black vultures are frequent; and, eſpecially in winter, boldly enter the plains in ſearch of carcaſes. Theſe birds are ſometimes accompanied by a ſmall white ſpecies of vulture, with black wings, and a bald head of a perfectly citron-yellow colour: it has not hitherto been deſcribed, and is probably a native of Anatolia. The migrating falcon rarely ſettles on the mountains; but the hawk, kite, and ſome ſmall birds of prey, are rather numerous. The ſmall owl, both with and without ears, as well as the ſmall-headed ſcreech owl, are alike common in the vallies; but the great horned owl is more rare. The grey royſton crow, the magpie, the blue crow, and the jack-daw, are frequent, and remain in the country throughout the winter. The feathers of the laſt-mentioned bird poſſeſs an extraordinary luſtre; and in its neſts, particularly on the banks of the Salgir, young ones are often found perfectly white. On the other hand, field-crows never appear, and ravens are very ſcarce. Starlings, indeed, were formerly ſeen in large flights; but, for ſome years paſt, their number has diminiſhed: which circumſtance, perhaps, may alſo account for the great increaſe of locuſts. Thruſhes paſs through the country in autumn; but the black-bird remains, and builds its neſt in the

the ſkirts of woods. Partridges are uncommonly frequent throughout the year, though quails arrive chiefly in autumn; when they viſit the vallies between the mountains, and migrate late in the ſeaſon towards Anatolia. Great numbers are caught by the ſhepherds with baſkets attached to poles, which are placed over the birds while they deſcend cloſe to the ground. Many are alſo taken by means of ſparrow-hawks and dogs. Among the ſmaller birds, I have in Crim-Tartary only met with the common nightingale (not that ſweet warbler of the night, whoſe notes are incomparably more perfect); the robin-red-breaſt; the wood-pecker, or *Certhia*; the grey wren; and the large titmouſe. Of birds preying upon grain, there occur the ſparrow, and the grey-hammer, which remains throughout the winter, and often periſhes during intenſe froſts. The king-fiſher is rare, but the bee-eater, or *Merops*, is frequent, as well as the common ſwallows; though the latter form only one neſt in the ſeaſon. Wild and tame pigeons are not very numerous.—Of poultry, the peacock, guinea-hen, turkey-cock, and common hen, thrive very well, and are extremely prolific. The gooſe and ſwan are likewiſe reared; but the tame duck is bred with difficulty: along the ſea-ſhore, and on the banks of rivers, are to be ſeen only the March-duck, the long-tailed duck, and the teal; which, like wild geeſe, remain upon the ſea, near the ſouthern coaſt, throughout the winter. The red and Turkiſh ducks are ſcarce. The bittern is frequent only in the Boſphorus, and cormorants are birds of paſſage. There appear to be but few ſpecies of ſea-gulls; among which the laughing and the black-headed gull are the moſt diſtinguiſhed. The common crane ſeldom builds its neſt

in the Crimea; nor does the ſtork viſit that peninſula: on the contrary, the ſmall crane, called the Numidian virgin, is very frequent, and conſtructs its neſt in open plains, chiefly in the vicinity of ſalt-lakes. The young birds are brought to market by the Tartars in great numbers, and are ſpeedily tamed, inſomuch that they afterwards breed even in farm-yards. Grey, red, and white herons, as well as the ſmall tree and night herons, are not uncommon. The lapwing, the woodſnipe, or *Totanus*, and two ſpecies of marſh-ſnipes, viſit this country only at the time of their paſſage, and remain here till the froſt compels them to retire. The great buſtard is ſeen in large flights, eſpecially during the winter, when it ſnows and freezes: thus, pieces of ice become attached to its wings, and the feathers of its crop; ſo that the bird is unable in the ſnow to take the run previous to its flying, in conſequence of which many are caught by the hand, or by means of dogs, and are brought to market alive. The experiment of rearing young buſtards has repeatedly been attended with ſucceſs: they become very tame, but never hatch their eggs. The ſmall buſtard ſeldom occurs.

There are but few ſerpents in the Crimea, probably becauſe the ſmall cranes deſtroy them, as well as mice; though the large dart, or *Coluber Jaculator*, is rather common in the mountains; but the adder and viper are extremely rare. Of lizards, there are found in the mountains, the *Lacerta apoda* (in the Tartar language *Stſhoka*), which I have deſcribed in the Memoirs of the Academy of St. Peterſburgh: farther, a ſmall lizard very numerous between rocks; it is ſlender, with browniſh or black ſpots on the back, of a flame-yellow colour on the lower ſide, and frequently with a green ſtripe over the ſhoulders:

ſhoulders: in the plains, green and browniſh lizards are very common; they perfectly reſemble thoſe of Europe, but are of a more conſiderable ſize. Of frogs, this country produces the large ſpecies, which I have formerly deſcribed*, and an abundance of ſpotted, croaking toads†: the green frog is rare, and of a very beautiful colour.—Two ſpecies of land-tortoiſes are found in the moiſt, low grounds.

The freſh waters of Crim-Tartary contain but few fiſh, the principal of which is the trout: it is taken in ſome of the mountain-ſtreams, that alſo afford a ſmall kind of barbel, the groundling, and the *Couvieres* of the French. In ſome lakes, near Kaffa, the *Cyprinus Idus* is alſo caught, and is here miſtaken for carp. The Euxine Sea, and that of Azof, abound with fiſh: but too few fiſheries are eſtabliſhed, to ſupply the peninſula; on which account great numbers are, during the winter-faſts, ſtill imported from the Dniepr. The moſt conſiderable fiſhery is that of the Greeks inhabiting the ſhore of the Boſphorus, where two ſpecies of ſturgeon are caught in large numbers. Some perſons have alſo eſtabliſhed fiſheries near Arabat; where, in proſperous years, eſpecially in winter, the *Sandres* of the French, and the ſmall bream, or *Wimba*, are taken in large quantities. The moſt productive fiſhery on the Black Sea is in and about the port of Akhtiar, where many naval officers permit their boats'-crews to fiſh with drag-nets, and amply to ſupply the markets. Lately, a fiſhery with drag-

* *Rana ridibunda.* Pallas's Former Travels, Vol. I. Suppl. p. 458. No. 14. German edit.

† *Rana veſpertina. Ibid.* No. 15. *Rana variabilis. Spicileg. Zool. Faſcic. VII. p.* 1. *Tab.* 6. *Fig.* 3, 4.

nets

nets was alſo carried on in the Bay of Kaffa, with tolerable ſucceſs; but the method, uſually practiſed on the coaſts by the Greeks and Tartars, conſiſts in employing the round caſting-net, termed by the French on the coaſt of the Mediterranean *Epervier*, by the Tartars *Satſma*, and by the Greeks *Peſovolo*; with which, however, few fiſh are taken. The moſt common ſort, occurring here, is the mullet, or *Mugil Cephalus*, which ſwims in large ſhoals along the whole ſhore of the Black Sea, as far as the Canal of Conſtantinople; and from the roe of which Botargo is prepared. Fiſh of different ages advance in diſtinct ſhoals; a fact, which has alſo been obſerved in the Boſphorus, and in ſome parts of the Sea of Azof. Strabo has given a very accurate deſcription of this fiſh, under the name of *Pelamys*; of its origin in the Black Sea; its paſſage through the Thracian Boſphorus; and the large draughts of it, that are taken in the Bay of Conſtantinople. The ſea-fowl, and the ſmall dolphins of the Euxine, generally follow its courſe, and might render a fiſhery, here eſtabliſhed upon an extenſive ſcale, ſtill more productive. Similar ſhoals of large, and fat, delicate herrings appear in the winter; of which many thouſands are caught at one time in the draw-nets. They are alſo taken at the ſtrait of Tonkoi, which connects the Sivaſh with the Sea of Azof. A ſort of anchovies (properly called *Atherina*), by the Ruſſians termed Byela Rybka, or white fiſh, and by the Tartars *Chamſſi*, arrives during the vernal months, eſpecially in March, in ſuch quantities, that, after the equinoctial ſtorms, the ſea-ſhore is ſometimes in a manner ſurrounded with a rampart of thoſe fiſh. A ſucceſsful attempt has been made to cure them, like Sardinias. In ſome ſeaſons, they are carried by loads

loads to the inland towns, and are often ſo plentiful, that it becomes neceſſary, at Akhtiar, to prohibit them from being brought to market during the great faſts, leſt the ſea-faring people ſhould contract fevers, by eating them too freely. Mackerel, or the *Scomber Pelamys*, are likewiſe caught in ſhoals, and are ſalted in barrels: they are more eſteemed, and acquire a finer flavour, after having been a year in that ſtate.

A remarkable fiſh of theſe ſeas is, a kind of burt or bret-fiſh, which is found ſingly, and of a large ſize, both in the Euxine Sea and that of Azof. Strabo mentions the capture of them in the laſt-mentioned ſea, as well as in the two *Rhombites* of the Greeks, which have thence received their names, and by which we are probably to underſtand the Bays of Yei and Atſhuyef.

Among the ſmaller fiſh, appearing along the coaſt, are three ſpecies of the *Gobius*, or, as they are called, *Buitſhki:* they inhabit the interſtices of rocks and ſtones, are very ſavoury, but eaſily become putrid: farther, the bearded gurnard, or *Mullus barbatus;* which, on account of its delicate taſte, has received the name of *Sultan-Balyk*, or the ſultan's fiſh: it is ſcarcely five inches in length, and is well adapted for pickling: alſo, ſix or ſeven kinds of well-flavoured ſea-carps (*Labri* and *Spari*), among which are the parrot-fiſh; the ſea-pike with green bones (*Eſox Balone*); the variegated, long-winged, red gurnard, or *Trygla cucubus;* ſome ſmall *Blennii*, &c. With the rarer kinds of fiſh, that are not caught every year, muſt be claſſed the *Ombrine*, and a ſpecies of ſmall ſalmon, which chiefly frequents the mouth of the rivulet, near Inkerman. In both ſeas, the ſting-ray, or *Raja Paſtinaca*, is ſometimes taken,

as

as well as another fiſh of the ſame genus, beſide a great variety of the finny tribe.

In general, the Crimea has no great diverſity of inſects; but many of thoſe, with which it is infeſted, in ſome years remarkably increaſe. The ſmall number of ſpecies is the more ſurpriſing; becauſe the country yields ſuch a profuſion of different plants, and is ſituated in ſo ſoutherly a latitude. This, however, is not a proper place to give a complete catalogue of all the inſects I have obſerved in Crim-Tartary: let it therefore ſuffice to mention ſome of the moſt diſtinguiſhed.

Of chafers, there are in the Crimea the *Scarabæus Moloſſus*, *Silenus*, *Sacer*, *Pillularius*, and two peculiar ſpecies belonging to the ſame genus; the *Lucanus Cervus*, and *Capreolus*, are frequent in gardens and woods: farther, the *Hiſter major*, *Bruchus Piſi*, *Curculio cruciatus*, *Cerambyx Cruciger*, and *Juglandarius*; ſeveral fine *Bupreſtes*; a very large violet-coloured *Carabus*, which inhabits the interſtices of rocks, and makes its appearance only after heavy rains, and in the night-time; a few rare *Tenebriones*; ſome particular kinds of *Meloë*; a peculiar ſmall *Blatta*, reſiding in the mountain-foreſts; ſeveral remarkable wingleſs locuſts; and in general a great variety of this claſs, among which the *Gryllus oxycephalus*, and another with ſtriped eyes, being nearly allied to the *Gryllus Tataricus*, are common in the ſouthern dales; the *Cicada Orni* and *plebeja*, abundant in the ſame vallies; ſome curious winged bugs: farther, the *Mantis pectinicornis*, and ſeveral others; the *Myrmeleon libelluloides*, and *barbarum*; *Sphendon crabroniformis*; *Chryſis calens*; wild and tame bees; *Papilio Celtis*, *Hypſipile*, and *Cynara*, in great numbers; the *Sphynx Atropos*, *lineata* (though the *S. Elpenor* is never

never found here), and ſome peculiar varieties; a few *Phalaenae*, among which occur rare and ſingular kinds; abundance of *Tarantulæ;* and a ſmaller variety, which, like the common ſpecies, carries its young brood upon its body during autumn; the *Aranea lobata*, of a ſilvery luſtre on the upper ſide; and the *Aranea ſpecioſa**; *Phalangium Araneoides*, rather ſcarce; *Scorpio Carpathicus* in the mountains; the pernicious *Scolopendra morſitans* and *longipes*, very frequent; the former beneath ſtones, and in clefts of the earth; the latter† in houſes, and alſo under ſtones:—a large *Iulus* is likewiſe frequent between the rocks, on warm mountainous declivities; laſtly, in the rivers, there are numerous well-flavoured crabs, and in the ſea two ſpecies of lobſters; one of which, in ſummer, viſits the ſhore during night, for the purpoſe of procreation, when it is taken by torch-light with the hand; but otherwiſe it generally reſides between the cliffs; not to mention ſome peculiar wood-lice, both on land and in the ſea, and a ſmall blueiſh marine locuſt. —It is a fortunate circumſtance for Crim-Tartary, that gnats are here uncommonly rare, and infeſt only the vicinity of Inkerman, in any conſiderable numbers.

On the Crimean coaſt I have hitherto obſerved but few Zoophytes and ſoft animals, living in the ſea. Except the *Aſcidium gelatinoſum*, an ordinary *Actinia*, the *Meduſa aurita*, and ſome *Nereides;* the *Alcyonium Schloſſeri*, (*Botryllus ſtellatus*,) the common *Corallina officinalis*, and ſome *Sertulariæ*, which are

* Pallas's "*Travels in Siberia*," Vol. II. Suppl. p. 732. n. 97.

† The *Julus araneoides* (*Pall. Spicil. Zoolog. IX. p.* 85. *Tab. IV. Fig.* 6.), which has, perhaps by accident, been deſcribed as a marine inſect, is very common in the Crimea; being extremely ſlender, and running with great rapidity.

attached to marine plants, and oyſters, no others belonging to this claſs occurred to my notice. Nor does the Euxine produce any curious *ſhell-fiſh*. Oyſter-beds appear to exiſt along the whole rocky coaſt; but thoſe near Kaffa afford a ſmall ſpecies, with thin ſhells of various colours. At the ſame place, the common muſcle, or *Mydia*, is plentiful, large, and well-flavoured; often containing, as already has been obſerved, numerous ſmall pearls. Theſe, with the oyſters, or *Oſtridia*, and the common *Petalides*, are a favourite food of the Greeks during their faſts, as alſo the large ſnails, frequent in the vineyards; beſide which, nine or ten other ſorts of ſmall land-ſnails are very abundant in the mountainous part of the peninſula, eſpecially one that breeds in all fallow-lands and woods, and, towards autumn, attaches itſelf in cluſters to ſhrubs, and the ſtalks of plants. I have no where met with any rare ſea-muſcles; only the razor-fiſh, or *Solen*, of the Boſphorus, which has ſhorter ſhells than the common kind, and ſeems to be of a peculiar ſpecies. In ſome hard calcareous ſtones, compoſing the ſhore, there is incloſed a particular ſmall *Pholas;* and the ſhip-worms do conſiderable damage to veſſels along the whole coaſt.

IX.

OF THE SALT-LAKES IN CRIM-TARTARY.

I have already given my opinion, in the courſe of this work, reſpecting the origin of the Crimean ſalt-lakes, or *Tuſla:* their

their general nature and ſituation appear fully to confirm my conjecture. All of them occur on the ſea-coaſt; and from their form, as well as the low and narrow tracts of land that ſeparate them from the ſea, they have apparently been bays; which, partly by the maſs of gravel, mud, and ſtones, accumulated by the violent action of the waves, and partly by a former diminution of the ſurface of the ſea, are transformed into encloſed lakes; wherein the ſalt of the ſea-water has been cryſtallized by evaporation*. I will not, however, diſpute, that ſome of theſe lakes may alſo be ſupplied by concealed ſalt-ſprings, though no ſuch ſources are obſervable in their vicinity, nor in the whole Crimean plain; while on the ſouthern mountainous coaſt, where we noticed ſome bitter ſaline ſprings, no ſalt-lakes exiſt. It is alſo worthy of remark, that near the ſea no ſalt is depoſited by thoſe lakes, which receive a running ſtream, and communicate with the former; ſuch as the Kamyſhlee in the neighbourhood of Koſlof, and the Leeman of the rivulet Moloſhna.—I ſhall commence with the enumeration of theſe lakes from the weſtern angle of the Cherſoneſus, and thus follow the lower coaſt of the peninſula.

On the Cherſoneſus itſelf, as I have already mentioned, there are four ſmall ſalt-lakes; namely, two on the extreme point of land, and two at the *Kruglaya-Bukhta;* all of which have evidently ariſen from encloſed bays, and are not diſtinguiſhed by any particular names.

No ſaline lakes occur between the mouths of the Belbek, the Alma, and the Bulganak; but, towards Koſlof, we found

* Strabo juſtly denominates ſuch ſalt-lakes "*Limnothalatta, Lacus in mare ſe exonerans, qui habet Halopygia* (*Salinas*).

ſeveral abounding with ſalt. The moſt ſouthern is the *Saak*, about fourteen verſts diſtant from Koſlof, and near the village of that name. It is at leaſt fifteen verſts in circumference; of a very irregular form; has many creeks; is ſeparated from the ſea by a tolerably broad, flat neck of land; and is ſo rich in ſalt, that, in productive years, not a third part of it is removed. Waggons, drawn by oxen, may advance into the lake, and be there laden with ſalt. The greater part of this commodity is exported, chiefly by ſea, to Anatolia; and it is alſo ſtored up in large heaps, which are covered with mats. The *Saak* is celebrated in the Crimea as a medicinal lake; becauſe perſons, labouring under gouty and other chronic affections, reſort to it in the ſummer, and immerſe themſelves in its mud for three ſucceſſive days, as high as the neck, and are thus frequently relieved.

The large *Gnilöe*, or the Putrid Lake, cloſely borders on Koſlof, and is diſunited from the ſea by a narrow iſthmus, over which the poſt-road leads from Akmetſhet to Koſlof: it is not ſtrongly impregnated with ſalt, its water being only brackiſh and fetid; becauſe this lake is probably ſupplied by contiguous ſprings.

To the north of Koſlof, along the ſea-ſhore, as far as the point of the Tarkhanſkoi-Kut, I perceived a ſeries of ſalt-lakes of different ſizes; among which the *Konrat*, near the village of the ſame name, and fourteen verſts from the town, has a circumference of ſix verſts; the Adſhi-Baſhee, alſo in the neighbourhood of a village of that name, eleven verſts from the former, is two verſts in circumference; the lake in the vicinity of the village Soltan-Ali, three verſts; the next lakes, *Kenegeſs*, *Terekly-Aſs*, and *Kerleyt*, are reſpectively three, ſeven, and twenty-

twenty-five verſts diſtant from Soltan-Ali; each being about five hundred fathoms in circumference. All theſe lakes are parted from the ſea, merely by narrow ſand-banks, which have formerly been thrown up by the force of the waves: they depoſit abundance of ſalt, which, however, is partly rendered uſeleſs, on account of its diſtance from the roads of Koſlof.

In the diſtrict of Perekop are the moſt important and productive lakes; from which the Governments of New Ruſſia, Little Ruſſia, Kharkof, and White Ruſſia, are chiefly ſupplied with ſalt. The two principal of theſe lakes are ſituated at a ſmall diſtance from each other, and are known by the names of *Staröe-Oſero*, or the Old Lake, and of *Kraſnöe-Oſero*, or the Red Lake. The former lies eighteen verſts from Perekop; is of an oblong form, and about fifteen verſts in circumference; the latter is only two verſts diſtant from it; likewiſe preſents an oblong form, with many creeks at the ſouthern extremity; and has a circumference of about twenty-four verſts. Both are ſituated at a conſiderable diſtance from the coaſt, in the centre of the neck of land that disjoins the Sivaſh from the Black Sea; and both have in part elevated and clayey ſhores: it is evident from their ſite and the direction of the hollows or low grounds, that ſuch lakes had once communication with the ſea; and that the Crimea was formerly an iſland. From theſe two lakes, upwards of two hundred thouſand, nay, even eight hundred thouſand, poods of ſalt, have frequently been obtained in proſperous years; but, in many ſeaſons, little ſalt is occaſionally depoſited in the Old Lake, or not till a late period of the ſummer; becauſe many freſh ſtreams fall into it; and, in the Red Lake, it happens in ſome ſeaſons that none is formed, as was the caſe

in

in the years 1789 and 1795. In the ſalt thence dug out, cubical pieces, as pure and clear as cryſtal, are occaſionally found, reſembling thoſe which occur in the rock-ſalt of Iletzki. The bed of both lakes is ſo hard, that it will ſupport heavy waggons drawn by oxen, for the purpoſe of loading them on the ſpot. Generally, however, ſcarce the third or fourth part is taken out: this is partly carried away in a freſh ſtate, and partly beaten together, in ſtore-heaps on the open ſteppe, where it cannot fail to contract impurities from the duſt and ſand. A large waggon from Little Ruſſia, drawn by two ſtrong oxen, pays for the quantity it can poſſibly load and convey through the gate of Perekop (which is computed at about ninety poods), the ſum of ten rubles: whereas a waggon-load of the dry ſalt (*Vagovaya-Soll*) from the accumulated ſtores, is reckoned only at ſeventy poods, and yet pays the ſame price. By the ſingle pood, the ſalt is ſold at ten kopeeks (about three pence Engliſh for forty pounds). The *Killo*, or two poods ten pounds of ſalt from the lakes of Koſlof, is vended to the Anatolian traders at fourteen kopeeks. This commodity is dug out of the lakes, partly by the waggoners themſelves, and partly by hired labourers, or the Tartars of the adjacent villages, who are alſo employed on ſuch occaſions; and, like others, receive either two kopeeks for each pood, or ſometimes an equivalent in ſalt. Formerly, the ſale was under the ſuperintendance of a Member of the Adminiſtration, and his ſubordinate officers: in this lucrative ſituation, ſome of them have amaſſed conſiderable wealth, within the period of a few years. Thus managed, the Crown at laſt derived only about one half of the revenue which is produced by the farming out of all the ſalt-

lakes

lakes ſince the year 1797, when it was fixed at two hundred and eighty thouſand rubles per annum.

The third of the ſalt-lakes near Perekop is the *Adaman*, by the Ruſſians denominated *Krugloi-Oſero*, or the Round-Lake. It is only one verſt and a half diſtant from the Red Lake, and about ſix verſts in circumference. Its bottom is muddy: when ſalt is formed, the carriers are permitted to ſupply themſelves with it, but no part is ſtored up for the magazines of the Crown.

The fourth is the ſalt-lake *Itarkhan*, alſo called *Keeyatſköe-Oſero*, from the name of an adjacent village. It is of an oblong form, extends from Eaſt to Weſt, and has deep inlets on the ſouthern ſide. Its circumference is nearly twenty, and its diſtance from the Adaman is three verſts. This and the ſucceeding lakes are the moſt remote from the Sivaſh; but the former preſents long creeks on the ſide next the Putrid Sea, which render it probable that a communication formerly exiſted between them. The bed of this lake is tolerably firm; though it is reſorted to, only when large quantities of ſalt are required at one time, in order to prevent too great a concourſe of people and of draught-cattle at the Itarkhan.

The fifth ſaline-lake is the *Kerleyt*, ſituated near the Keeyatſköe-Oſero, in a more ſouthern direction. It is of an oblong figure; about two verſts in circumference, and depoſits ſalt in a larger quantity, and of a better quality, than that produced by the Red Lake; but its bottom is muddy.

To the Eaſt of the Kerleyt, and almoſt parallel with it, lies the great ſalt-lake *Kirk*, the circumference of which amounts to thirty-two verſts. It is likewiſe oblong, from North to South,

South, with a narrow creek at the ſouthern extremity, running in a northerly courſe. Five verſts from the latter is the ſalt-lake *Elöaga*, which is fifteen in circumference. In theſe two lakes, ſalt is depoſited only in particular years, and then not in large quantities; for which reaſon, as well as on account of the diſtance, it is not uſed by the carriers, but is given to the Tartars inhabiting the adjacent country.

Ten verſts from the Elöaga, are ſituated the lake of *Kurſk*, which is thirty, and an oblong lake, fifty verſts in circumference; near the coaſt of the Sivaſh, on the peninſula of Tſhungar, and in the vicinity of the village Keeré. Theſe are likewiſe frequented only by the neighbouring villagers, and ſeldom depoſit any ſalt.

Much more important, and abounding with ſalt, is the lake *Jenits-khe:* it lies upon a very broad part, near the northern extremity of the iſthmus of Arabat; is twelve verſts from the Sea of Azof; and thirteen in circumference. It is much reſorted to; and a clandeſtine traffic was here formerly carried on to a conſiderable extent. The ſalt, of which not a quarter is annually uſed, is partly conveyed by carriers into the Governments of New and Little Ruſſia, and partly ſent by water to Taganrog; being conveniently landed from the lake by means of boats.

I now proceed to treat of the ſalt-lakes in the peninſula of the Boſphorus, which are chiefly uſed to ſupply its inhabitants, and for exportation from the ports of Kertſh and Kaffa to Anatolia. The largeſt is the *Al'inſköe*, alſo called *Aktaſh*, being ſituated near the rocky point of land termed *Kaſandip*, that ſtrongly projects into the Sea of Azof; and upon which veſtiges

veſtiges of an ancient Venetian town are ſtill diſcoverable. Its diſtance from Kaffa is computed at about fifty, and its circumference at twenty-three verſts. The lake does not depoſit ſalt every year; and, if any be formed, it is ſmall-grained, and difficult to be dug out. In favourable years, it is partly conveyed to Kaffa for exportation, and partly carried to the fiſheries in the ſea laſt mentioned by the boats which navigate the Don. The Alinſköe preſents a few iſlands, and has evidently originated from a bay of the ſea.

At the village of Shrik-Ali, thirty-five verſts from Kaffa, there is a ſaline lake, meaſuring one verſt in circumference. Its is richer in ſalt of an inferior quality, and is reſorted to only when other lakes, in conſequence of heavy rains, are not productive of that uſeful commodity.

Tſhokrak, likewiſe called *Miſſir*, is a roundiſh ſalt-lake, upwards of ten verſts in circumference, with ſeveral creeks; being ſeparated from the Sea of Azof by a low and narrow iſthmus. It is ſeventeen verſts diſtant from Kertſh, at the ſide of a bay, formed partly by the point of land which is termed *Uſuk-Kaleſſi*. Salt of a good quality is found in it every year, though not a fourth part is taken out for exportation to Anatolia, and for ſupplying the Government of New Ruſſia, by means of the boats from the Don, which here find good ſhelter.

The *Shungulek* is ſituated on the Boſphorus, and has originated from a bay of the ſtraits, as I have already ſtated.

Another ſalt-lake, denominated *Elken*, or *Itaraltſhik*, lies to the Weſt of mount Opuk. It is of an oblong form, extending from North to South; and at leaſt eight verſts in length, with

a creek at the ſouthern extremity running in a North-eaſtern direction; being twenty-ſeven verſts in circumference, at the diſtance of fifty verſts from Kertſh, and ſomewhat farther from Kaffa. Its ſouthern point appears formerly to have communicated with the Black Sea (cloſely bordering upon it) by means of a ſmall opening between eminences, but which is now cloſed by a narrow iſthmus. It depoſits every year abundance of ſalt, that is exported to Anatolia.

At the diſtance of little more than two verſts from the preceding, and nearer to Mount Opuk, there is a ſmaller ſalt-lake, ſeparated from the Euxine by a low neck of land, on which ſtands the village of Tuſla-Koyak. Like the Elken, it is encloſed by heights, and by the eaſtern contiguous mount above named; forms ſeveral creeks towards the ſea; and is called *Uſunſkoi-oſero;* being computed to be about ten verſts in circumference.

The ſalt-lake *Katſhik*, borders on a promontory of the ſame name, by which the bay of Kaffa is bounded on the Eaſt: this lake is broadeſt towards the Black Sea, from which it is ſeparated only by a low and narrow ſand-bank. On account of the influx of freſh water, it ſeldom depoſits any ſalt.

On the ſtrand of the bay near Kaffa, lies another ſalt-lake, termed *Koiti*, which is divided from it only by a narrow ſlip of land. The ſalt formed in it, was firſt diſcovered in the year 1793, though it was diſſolved by ſubſequent rains.

Of the ſame nature with the ſalt-lakes of Crim-Tartary, are thoſe ſituated between the Berda and Moloſhnye Vody, as alſo on the banks of the Dniepr. For, on the borders of the Sea of Azof, along the two promontories denominated Berdänſkaya-Koſſa,

Koſſa, there are in the low ſhore ſeveral ſmall lakes and ponds, containing ſalt, and which are ſeparated from the ſea by the alluvial ſand. The moſt conſiderable, on the iſthmus contiguous to Petroffkaya-Krepoſt, are the following:

Skalkovatöe, ſix verſts from Petroffk, and four verſts in circumference.

Sudovoi, lying at a very ſhort diſtance from the preceding and from the ſea: it is two verſts in circumference.

Gruſkoi, two verſts from the former, and nearly of the ſame ſize.

Kraſnöe, very near the laſt-mentioned lake, and about three verſts in circumference.

Obitoſhnöe, near the ſecond or weſtern Berdänſkaya-Koſſa, fifty-eight verſts from Petroffkaya-Krepoſt, and not exceeding one verſt in circumference. All theſe lakes receive large quantities of ſnow-water in the ſummer, on which account ſalt is rarely formed; and, though of an inferior quality, it is ſtill employed in ſome of the fiſheries.

Several productive ſalt-lakes, of the ſame nature as the preceding, occur on the iſthmus of Kinburn. Some of them are in a detached ſituation, at the commencement of this neck of land, on both ſhores; among which is a fetid lake, cloſely bordering on the coaſt of the Black Sea: others appear in two places, on the Leeman, at a ſhort diſtance from Fort Kinburn, and on the ſhore of the Euxine, at the point which terminates in an eaſterly direction. Theſe different lakes, the ſalt of which was ſold with great profit to the Poles, were formerly let to Count, now Prince BESBORODKO, for the annual rent

of five thouſand two hundred rubles: his contract expired in the year 1795.

The ſalt, depoſited in all theſe lakes, is of an inferior quality. When it is intended to be uſed for curing meat, with which an important traffic might be carried on to the Mediterranean, as well as for ſupplying the fiſheries, it ought previouſly to be purified of its earthy and magneſian particles, by the affuſion of freſh water. Many of theſe ſalts poſſeſs the well-known violet odour, that always indicates an impure ſtate; and ſome of the lakes are alſo diſtinguiſhed by the red tinge, which I remarked in various ſaline waters of Siberia, during my travels in that country. The pureſt ſalt is produced by the lakes in the immediate vicinity of Perekop; and, in ſome of thoſe occurring in the peninſula of Kertſh, it is found tolerably pure, in quadrangular inverted pyramids. Since the year 1788, a vaſt quantity of that commodity has been obtained from ſuch of the lakes above enumerated, as are moſt conveniently ſituated for its exportation. In that year, 842,660 poods of ſalt were dug out of the lakes of Perekop; from thoſe of Koſlof, 60,000 poods; of Kaffa, 46,890 poods; of Kertſh, 15,380 poods; of that in the neighbourhood of Jenits-khe, 517,495 poods; together 1,482,425 poods.—In the year 1789, the quantity, gained at Kaffa, was 27,243 poods; at Kertſh, 8,454 poods; at Jenits-khe, 400,000 poods; making a total of 435,697 poods;—in the year 1790, at Perekop, 1,809,390 poods; at Koſlof, 12,425; at Kaffa, 5,230; at Kertſh, 164,300; at Jenits-khe, 300,400; amounting in the whole to 2,291,745 poods;—in the year 1791, at Perekop,

270,000

270,000 poods; at Jenits-khe, 250,000 poods; together 520,000 poods: for, in the other lakes no ſalt was dug, during this and the ſubſequent year, on account of the navigation being interrupted by war. In the year 1792, the lakes of Perekop yielded 731,682 poods; thoſe of Koſlof 178,318; in all 910,000 poods.—In the year 1793, the lakes of Perekop afforded 280,000 poods; thoſe of Koſlof, 100,000; of Kaffa, 50,000; of Kertſh, as well as in the vicinity of Jenits-khe, each a ſimilar quantity; of Berdänſkaya, 740 poods; in the whole 530,740 poods; and, in the ſubſequent years, the produce has uniformly exceeded ſeveral millions of poods.

X.

ON THE MANUFACTURES, AND COMMERCE OF THE CRIMEA.

By the emigration of the Greeks and Armenians, induſtry, which had not been very remarkable in Crim-Tartary under the government of the Khans, was almoſt extinguiſhed; and, though this country has now been ſubject to the dominion of Ruſſia fifteen years, there is a deficiency of the moſt neceſſary artizans, as well as of manufactures. Among the latter, which are ſtill carried on, (which belong partly to Tartars, and partly to Jews or Greeks,) that of morocco-leather, at Bakhtſhiſarai and Karaſſubaſar, are the moſt important. In the former town are thirteen manufactories, one of which is the property of the

the metſhet Yani-Dſham; and at Karaſſubaſar are five, where white leather, termed *Meſhini*, is alſo prepared. There are, beſides, in the laſt mentioned town, four others for red leather, as well as a few in Koſlof. But the beſt manufactory is that eſtabliſhed ſome years ſince, at a conſiderable expence, and upon the ſame plan as thoſe of other countries, by Admiral Mordvinof in his village of Eggis-Obo, on the banks of the Katſha, where ſole and upper leathers are manufactured.

The red and yellow Moroccos of the Crimea are in no reſpect inferior to thoſe of Turkey, and ſeveral thouſand ſkins are annually uſed, partly in the country for horſe equipage, as well as for clothing the feet and legs, and partly for exportation to Ruſſia. The beſt leathers of this kind are prepared only from buck-ſkins, which are purchaſed at the rate of a ruble and a half each. The inferior ſorts, eſpecially the yellow, are manufactured from thoſe of ſheep, which in a raw ſtate are ſold at the rate of ſeventy kopeeks a ſkin.—According to the moſt accurate information which I have been able to procure, the hides are firſt put into lime for ten days, and the hair is ſeparated; when they are immerſed in lime-water for fourteen days. After undergoing this operation, they muſt lie nearly the ſame ſpace of time in a ley, with the addition of the white excrements of dogs. Next, they are waſhed very clean, and covered with pounded ſalt, with which they remain in water for five days, and are then anointed with honey-water on the hairy ſide, to which the colour is to be imparted. In this pickle they may be kept from ten days to ſix months, according to the manufacturer's convenience, before they are dyed. The cochineal uſed for the purpoſe of tinging red

red morocco is ſold in Bakhtſhiſarai, at from forty to one hundred rubles and upwards the ocka, in proportion to the greater or leſs importation of that commodity into the country. For dyeing forty ſkins, the Tartars take three hundred and fifty drachms of cochineal; fifteen drachms of a root called *Tzögenn*; boil theſe colouring drugs in one hundred ocka, or ten eimers of water; then add fifteen drachms of alum, (*Shap*, or in the Greek language *Stipſi*); and with this decoction they dye every ſkin eight times, each proceſs requiring a meaſure that contains fifteen drachms of the mixture. Laſtly, the ſkins are rubbed with the leaves of the *Cotinus*, or *Tabak-Yaprak*; water is poured upon them; and they are trodden together for a long time; then dried; laid one upon another; anointed with olive oil; and at length mangled and preſſed; which laſt operations are twice repeated *. The beſt red morocco ſkins are ſold, according to their ſize and beauty, at from three to four rubles each; though the yellow ſort is conſiderably cheaper.

Farther, the town of Bakhtſhiſarai contains about ſixteen workſhops, where all kinds of knives, ſwords, and cutlery, are manufactured, and which are highly eſteemed for their excellent temper; alſo ſome artizans, who prepare tolerably large felts of various colours, amounting in the whole to five thouſand pieces; and felt cloaks, termed *Burki*, for keeping off the rain; ſuch as are in uſe among the Circaſſians. The wool employed for this purpoſe is bought at twenty-five kopeeks the ocka; and the felts are ſold at two, but the

* This proceſs is with little variation followed by the morocco-manufacturers of Aſtrakhan. See GMELIN's Travels (in German), Vol. II. pp. 165. et ſeq.

burki

burki at three rubles each. In Karaſſubaſar, ſome Greeks and Armenians have eſtabliſhed a ſoap-manufactory, and ſeveral for making good candles. In the ſame town are many Armenians who make indifferent earthenware, tiles, and pipes for conducting water. Large quantities of the latter are likewiſe made in villages, eſpecially in Sobla, where the clay is of an excellent quality. Sadlers' and ſhoemakers' work is neatly executed, eſpecially in Bakhtſhiſarai.—The Tartar mountaineers chiefly furniſh the market with wheels of all ſizes; which differ greatly in point of ſtrength, and are awkwardly conſtructed.

Since the year 1793, ſome Greeks, eſpecially in the vicinity of Kaffa, have employed themſelves during the autumn in burning ſoda, or *Kallia*, in pits, from the *Atriplex laciniata* and the *Salſola altiſſima*. It is exported to great advantage in round maſſes, formed while it is melting; and, in this ſtate, its prime coſt is five rubles the *Kantar*, (440 ocka, about three poods, equal to a Vienna hundred weight.) Each hundred weight of ſoda requires about fifty-ſix Tartar cart-loads of herbs. In ſome villages, for inſtance in Aktaſhi-Keeyat on the banks of the Salgir, the Tartars ſtill manufacture ſalt-petre; large quantities of which were formerly prepared in the Crimea; and thirty or forty thouſand ockas were often exported in one year to Conſtantinople. They collect the nitrous earth chiefly from the heaps of aſhes, or *Kurgan-Obo*, which, according to their ancient cuſtom, are accumulated from their fire-places in all the villages of the plains, and which principally conſiſt of the aſhes ariſing from dung-turf. As theſe heaps are dry and warm, the ſheep delight to lie on them in the winter; moiſtening them

them with their urine, and dropping their excrements upon them. Every place where ſheep remain during the night, and repoſe after being watered, likewiſe affords good earth for the extraction of nitre; unleſs it be too much impregnated with ſalt. This earth is completely lixiviated in tubs, or caſks of a moderate ſize; and is ſo rich, that, according to the Tartar computation, it yields a twentieth part of ſalt-petre, which is already provided there with its alkaline baſis, and requires no farther addition of pot-aſh. The ſecond ley is again poured on the freſh earth, and boiled in ſmall kettles, into which about ſixteen eimers of the ley are gradually introduced; ſo that one boiling in general continues twenty-four hours. The eimer yields about two pounds of ſalt-petre. In its purification, the Tartars employ for each ocka the white of an egg, which is added to the re-diſſolved nitre: after ſuch proceſs it becomes tolerably pure, and is ſold at forty-five or fifty kopeeks the ocka, conſequently at the rate of ſomewhat leſs than ſix rubles the pood. Formerly, the price is ſaid to have ſcarcely exceeded two, and in Anatolia it was vended at nearly eight rubles per pood. Heaps of aſhes, ſimilar to thoſe above mentioned, alſo exiſt even in the deſerted villages on the peninſula of the Boſphorus, which might furniſh large ſupplies of ſalt-petre.

When we conſider the confined ſtate of induſtry, the preſent thin population, and the ſcanty production of the fruits of the earth, Crim-Tartary cannot promiſe itſelf any great import or export trade; eſpecially from its iſolated ſituation, and its diſtance from the interior provinces of Ruſſia, which abound in grain. Notwithſtanding its advantageous poſition, with

reſpect to maritime intercourſe, for the reaſons already aſſigned, as well as from the mode of conveyance, being facilitated neither by internal or coaſting navigation, nor by roads that are in winter paſſable by ſledges, there cannot ſubſiſt any communication with the ports of Taganrog, Kherſon, and Odeſſa, which are ſupplied with every article of exportation at the firſt hand, and in their immediate vicinity. The navigation of the Black Sea is, in general, obſtructed in the winter by ſtorms, thick fogs, and the freezing of the ſails and rigging; ſo that no ſhip is permitted to ſail from the Canal of Conſtantinople before the vernal equinox; conſequently, the Crimea can derive no advantage from its ports continuing open throughout the winter. It were much to be wiſhed that opulent merchants would eſtabliſh themſelves in this peninſula, and procure all the Ruſſian commodities, ſuch as iron, hemp, flax, maſts, ſail-cloth, cordage, tallow, butter, and wheat, by carriage on the Don, and over the Sea of Azof, from the cheapeſt markets of the interior of the empire; with a view to enable them directly to freight veſſels from their warehouſes, and thus induce traders to reſort to the Crimean harbours. A tranſit-duty ought likewiſe to be granted; in order that the foreign commodities, imported by way of the Baltic, namely cloth, velvet, cochineal, coffee, indigo, ſmall hard-ware, &c. might with advantage be exported to Anatolia; and the Smyrna caravan-trade be thereby reduced. The commodities which at preſent conſtitute the export trade of Crim-Tartary are chiefly ſalt; wheat, which in unfavorable years is procured only from the Dniepr, and from the country of the Nagays; leather; ſoda; butter; ſome caviar and dried fiſh;

fiſh; felt; ropes; a ſmall portion of furs, wax, honey, and Fuller's earth. Raw hides, wool, and ſalt-petre, which might form a conſiderable addition to theſe articles, are prohibited; and are only ſmuggled out of the peninſula. The importation is entirely confined to a few ſilk and cotton ſtuffs, for the uſe of the Tartars and their wives, who ſtill retain an attachment to Turkiſh manufactures and faſhions. It could not, therefore, be expected that the Crimea ſhould derive any great advantage from the eſtabliſhment of free ports; as the paſturage of its cattle on the ſteppes, bordering on the Dniepr, has been much contracted. On the contrary, the duty impoſed at Perekop has materially incumbered the importation of grain from Little and New Ruſſia; without which Crim-Tartary cannot poſſibly ſubſiſt, and ſtill leſs export corn; on account of the frequent failures of crops that have occurred ſince its ſubjection to the Ruſſian Government.

At preſent, therefore, the moſt profitable branches of exportation are the following: viz. ſalt, of which upwards of one hundred and fifty thouſand killo are annually ſhipped; and wheat, amounting in ſome years to ſixty or eighty thouſand *Tſhetverts*, or Ruſſian malters, (at ſeven poods and a half, or three hundred pounds each,) chiefly from Koſlof. Notwithſtanding the prohibition, hides are alſo ſent abroad in a conſiderable number. The quantity of ſoda exported does not much exceed one thouſand poods; though it might in future be greatly increaſed. Butter is ſold to foreign merchants to the amount of upwards of thirty thouſand rubles. All other articles of commerce are inſignificant, excepting a narrow, coarſe, and middling Ruſſian linen; of which about 70,000

arſhines, (or 54,444 Engliſh yards,) are carried out of the country. Iron would likewiſe afford a lucrative object of merchandize, if a ſupply adequate to the demand could regularly be procured. In the year 1800, this metal was ſo eagerly brought-up in the ports for the Turkiſh markets, that the price of a pood was raiſed to three rubles.

The principal imports are the following: namely, raw and manufactured cotton of different kinds; ſilk ſtuffs of various patterns, and in the Eaſtern faſhion; farther, the wines of the Archipelago, and thoſe prepared near the Canal of Conſtantinople; *Sekiſkaya-Vodka**, or brandy diſtilled from fruit, and the lees of grapes; Turkiſh leaf-tobacco; and a variety of freſh and dried fruits.

The total amount of the export-trade may be computed at from four to five hundred thouſand rubles, *ad valorem;* and the firſt of theſe ſums nearly correſponds with the ſtatements of the Cuſtomhouſe-Regiſters: on the other hand, the importation may be eſtimated at one hundred thouſand rubles below that calculation. The balance is paid, partly in ducats, but chiefly in the baſe Turkiſh ſilver coin, which is extenſively circulated within the peninſula; and, perhaps, large ſums are concealed among the Tartars. Prior to the year 1794, this money became current, in conſequence of the artful manœuvres of the bankers and merchants, who principally carried on a

* The *Sekiſkaya Vodka* has received its name from the iſland of Scio, which the Turks call *Sekis*. It is there diſtilled to a great extent; though it is alſo extracted in other Greek iſlands from wine-lees, as well as from the pulp of fruits, and is ſold at a low price. The farmers of the brandy-diſtilleries import large quantities of it, and convert it into an indifferent ſpirituous liquor.

foreign

foreign traffic with wheat; and availed themſelves of the very high eſtimation, in which the Tartars hold a genuine Mahometan coin: ſo that, even after its value had been raiſed twenty-two per cent. under the preſent Sultan, it ſtill maintained the ſuperiority (in exchange for ſmall coin and paper-currency) over the Ruſſian ſilver money; the intrinſic value of which exceeded that of the Turks, upwards of twenty-two per cent. The *Yüſlik* (which is equivalent to two piaſtres and a a half) had riſen to one ruble and three-fourths, nay, even to a ruble and four-fifths; the *Kilik* to one hundred and ſixty kopeeks; the *Altmyſhlik* to one hundred and fifteen kopeeks; and the *Gruuſh*, or *Lew*, to ſeventy kopeeks; but, in the ſubſequent years, when the exportation of corn was for ſome time prohibited, the Yüſlik fell to one ruble and a half; the Kilik to a ruble and two-fifths; the Altmyſhlik to ninety, and the Lew to ſixty kopeeks. As this rate ſtill exceeds the intrinſic value of the coin, and the Altmyſhlik, according to an accurate aſſay, does not contain more than forty-four Solotnik and five-ſixths of fine metal, and is exactly worth ſixty-three kopeeks and a quarter; the Government at length, in the year 1797, fixed the value at which the Turkiſh coins ſhould be received in payments; namely, the Yüſlik at ſeventy-four kopeeks and a half; the Kilik at ſixty-three and a half; the Altmyſhlik at fifty; and the Gruuſh, which is of a better ſtandard, at fifty-five kopeeks.

Occaſionally, Anatolian copper has alſo been introduced into the Crimea, on account of the Government. Thus, it was formerly imported for the mint there eſtabliſhed (and which was dropped in the commencement of the laſt war with Turkey, after a quantity

quantity of metal, ſcarcely amounting to one hundred thouſand rubles, had been coined into five kopeek-pieces) at the low prices of from three rubles and a half to five rubles the pood, and only by a ſmuggling traffic; its exportation being prohibited by the Sultan. At preſent, however, it bears a higher price, as appeared in the year 1796-7, when copper was again imported for the ſupply of a mint, that was intended to be erected at Kherſon.

Should the commerce of Crim-Tartary ever arrive at a flouriſhing ſtate, which might eaſily be effected by an encreaſe of population, and by means of a ſubſtantial privileged company, that ſhould eſtabliſh regular warehouſes in the peninſula, and be ſupported by facilitating the exportation of goods; ſuch commerce might be ſtill farther extended by importing Bruſian ſilk, Angora-goats' hair, and many ſimple drugs, which can be procured at a lower rate directly from the Levant, as well as ſafflower, madder, and ſaffron.

It is, however, to be hoped, that the rearing of the ſilk-worm* in Crim-Tartary will receive more effectual encouragement; that the cultivation of the vine will be carried on to a greater extent, and be adequate to the ſupply of the adjacent governments; and, laſtly, that, with a view to diminiſh the importation of foreign articles, and thus to increaſe the proſperity of this peninſula, ſpirited attempts will be made to cultivate cotton, madder, and ſeſamé; plants which have, by experiment, been found to flouriſh here, as well as on the banks of the Terek, and in the vicinity of Aſtrakhan.

* On this ſubject, ſee the truly patriotic remarks of the late M. Müller, Counſellor of State, in the *Sammlungen Ruſſiſcher Geſchichte*, Vol. VII. pp. 515. and following.

The

The exports from Crim-Tartary to Ruſſia conſiſt of ſalt, which is the excluſive property of the Crown; of grey and black lamb-ſkins; ſheep's and bullock's hides; ſheep's wool; camel's hair; Ruſſia leather; yellow tanned leather; hare-ſkins; wine produced on the banks of the Katſha and Alma, as well as in Sudagh, Koos, and other adjacent vallies; walnuts, partly of the growth of the peninſula, and partly imported from Anatolia, of which upwards of one million are annually ſent to Ruſſia, at the rate of from eighty to one hundred kopeeks the thouſand; hazel-nuts; apples of Sinap; freſh lemons and large oranges; together with dried fruits imported from other parts; ſturgeon's backs, or *Balyki*; *Nardenk*, or a marmalade of grapes; felts; hazel-poles, with which the Nagay-Tartars conſtruct their huts; and roots of the *Crambe orientalis*, or wild horſe-radiſh.

RETURN FROM THE CRIMEA TO ST. PETERSBURGH.

On the 18th of July 1794, I at length ſet out on my return to St. Peterſburgh, directing my route towards Koſlof; in order to viſit this ancient, buſtling, commercial town, which ſtill poſſeſſes a conſiderable population.

We followed the road leading from Akmetſhet to Perekop, till we croſſed the Salgir a ſecond time, after which we turned to the North-weſt, and entered a perfectly level country; where, however, the entirely horizontal calcareous ſtratum, abounding with oolites and teſtaceous fragments, in many places appears expoſed

expoſed on the ſurface. As I quitted the banks of the Salgir, I no longer found that diverſity of Alpine plants, which I had before obſerved in Taurida; but the uniform herbage of the ſteppes preſented itſelf to my view, and continued till I reached the ſaline ſandy tract in the vicinity of Koſlof. The plants, which I was ſtill able to aſcertain, were the following:

Salvia nutans.	*Dianthus Carthuſianorum.*
——— *Æthiops.*	*Scabioſa Ucranica.*
Marrubium peregrinum.	*Cichorium Intybus.*
Teucrium Polium.	*Artemiſia Auſtriaca.*
Onoſma echioides.	*Achillea tomentoſa.*
Sium Falcaria.	——— *millefolium.*
Eryngium campeſtre.	*Centaurea ovina.*
Daucus Viſnaga.	*Xeranthemum annuum.*
Echium vulgare.	*Gnaphalium arenarium.*
——— *altiſſimum.*	*Senecio Jacobæa.*
Statice trigona.	*Carduus pumilus.*
——— *Coriaria.*	*Inula odorata.*
Euphorbia Eſula.	*Ceratocarpus arenarius;*

and, in the neighbourhood of ſome ancient villages, I noticed the *Peganum Harmala*, to which the Tartars attribute the property of purifying foul air: they collect its ſeed (by them denominated *Ueſerlik*) as a purgative remedy, and export conſiderable quantities of it to Turkey.

The village of Tuyak, which is a poſt-ſtage, lies near two other villages. On advancing towards Koſlof, we reached the ſalt-lake of Saak, ſituated to the left of the road, and bordering on the village of the ſame name: between it, and the

Gniloë-

Gnilöe-Ofero, or Fetid Lake, to the right of the road, as alſo between this and the Black Sea (from which it is ſeparated only by a ſandy narrow iſthmus), the ſoil is impregnated with ſalt, and overgrown with the *Plantago maritima*, and other ſaline plants. The exhalations of this ſtagnant lake are believed to contribute greatly to the ſalubrity of the town of Koſlof; and on this account they are attended with ſimilar effects to thoſe produced by the effluvia from the Sivaſh at Perekop; where intermittent fevers are leſs frequent than in other places.

Koſlof, as it has always been called by the Ruſſians, is by the Tartars termed *Güſl-Öve* *. When the Ruſſians took poſſeſſion of Crim-Tartary, at which time they endeavoured to revive the denominations of the old Greek towns, the name of Eupatoria was allotted to this place; but the real ſituation of the ancient *Eupatoria* is very uncertain. The town lies at the diſtance of ſixteen verſts from Akmetſhet, on a gently riſing eminence, near the ſtrand of a circular ſhallow bay, having a ſandy bottom: hence the heat prevailing here in ſummer is intenſe, even during the night; and vermin are numerous. It may alſo be attributed to the ſame cauſe, that the fevers ariſing from ſudden changes of temperature are not common. The town, with the exception of ſome deſolate heaps of ruins, and the old fortification, is well inhabited; but is for the greater part built after the manner of the Tartars, in crooked, narrow ſtreets, with the houſes

* *Güs*, or *Gös*, ſignifies an eye, and *Öv* a hut; conſequently a hut with an eye, or a round window. The origin of this name cannot be traced.

concealed behind the high walls of the court-yards. The late M. SAURON, a French merchant, who carried on a profitable trade from Koſlof to Provence and Conſtantinople, has erected the beſt houſe in the place, on the ſea-ſide, together with good ware-houſes, and a machine for dreſſing wheat. Beſide thirteen Tartar metſhets, and ſeven *Medreſſes*, or ſchool-houſes, the great metſhet (which, next to that at Kaffa, is the largeſt in the Crimea, and is built after the ſame model,) conſtitutes the principal embelliſhment of the city. Its dome is eighteen Ruſſian ells in diameter: on each ſide are three, and at the corners of the anterior façade there are two, cupolas. It is ſomewhat more ornamented than that of Kaffa, and likewiſe had two high minarets, one of which was long ſince, and the other but lately, thrown down by violent guſts of wind; though neither of them has been rebuilt. The town has alſo two vaulted baths; eleven Tartar *Khans*, or mercantile inns and halls, which are the property of the ſubject, and ſix of the Crown; two hundred and twelve ſhops of private individuals, and one hundred and eleven belonging to Government; twenty-four coffee-houſes; eighteen bakers' ſhops; twenty-five coopers' and carpenters' yards; forty-five warehouſes; ſix tan-yards; ten felt-manufactories; twenty-five taverns and breweries, where buſa is prepared; an Armenian church; and a Greek chapel; a ſynagogue, and two Jewiſh ſchools; ſix hundred and fifty Tartar dwellings; thirty-eight Greek and Armenian houſes; and two hundred and forty occupied by Jews. The whole of theſe are inhabited by about one thouſand nine hundred male, and one thouſand eight hundred and fifteen female Tartars; alſo by three hundred and fiſteen males, and three

three hundred and eighty females, of the Jewiſh nation. The town-wall is in a very decayed ſtate, and was formerly provided with quadrangular turrets. At the weſtern and eaſtern extremities of the town, ſeveral mills (partly horizontal) are in motion; the number of which, including the ſubterraneous ones turned by horſes, amounts to thirty-four. The windmills with perpendicular ſails frequently have ſix or ſeven wings; and the lower part of ſome is conſtructed with maſonry-work. At the weſt end of the town, cloſe to the ſtrand, a ſpot is appointed for performing quarantine; but the buildings for ſuch purpoſe have not yet been erected. The road of Koſlof is expoſed to ſtorms from all the principal points of the compaſs, excepting the North, on which ſide it is ſheltered by the riſing land, and by the city. On account of the conſiderable trade here carried on, it would be a very deſirable object to eſtabliſh a ſmall ſecure harbour by the erection of a pier, and where ſhips might perform quarantine. This uſeful work might eaſily be accompliſhed on the elevated ſhore at the weſtern extremity of the bay, near the place now appropriated to that purpoſe; where the water is from ſeven to ten feet deep. For the want of ſuch a convenience, ſo many accidents happened to ſhips in the courſe of one year, that inſurance could no longer be procured for veſſels bound to the ports of the Black Sea, to the great detriment of the trade of Koſlof; which now is, and has always been, the moſt important of the whole peninſula. In the year 1793, for inſtance, one hundred and ſeventy-ſix veſſels were freighted with corn, ſalt, and leather; and the ſhort route by which goods are conveyed hither by the Nagays, and the Tartars inhabiting the banks

of the Dniepr, affords the greateſt facility to the corn-trade.—A greater number of tan-yards ſhould alſo be here eſtabliſhed, in order to promote the exportation of leather: in thoſe now exiſting, ſole-leather is manufactured, for which purpoſe the acorns and acorn-cups of the *Quercus Ægilops* (called *Balamut*) are chiefly procured from the Archipelago.

Koſlof was formerly ſupplied with water by means of pipes, which conveyed it from a reſervoir, eſtabliſhed at ſome diſtance from the wall. For this purpoſe, it was raiſed out of a deep and excellent well, by the aid of machinery worked by horſes. At preſent, however, there is ſcarcely a veſtige of ſuch contrivance remaining; and the inhabitants now make uſe of the water obtained from impure ſources.

In the environs of the town, only a few gardens occur; but in theſe the vine thrives luxuriantly, even without irrigation. On the ſandy beech grows a profuſion of the *Cenchrus echinatus*, *Meſſerſchmidia*, *Pſyllium*, *Eryngium maritimum*, and the *Pimpinella Saxifraga*, almoſt all of which are creeping plants.

From Koſlof to Perekop, we travelled over a level, ſandy ſteppe; and the ſoil of the whole Tarkhanſkoi-Kut is of a ſimilar nature. The calcareous ſtratum ſtill appears beneath this plain, as far as Toigaly (twenty-two verſts,) and Dſhalair, (fifteen verſts); whence, beyond Uſhum, (fifteen verſts farther,) we reached the Perekop road. Between Dſhalair and Uſhum, the calcareous ſtratum abruptly terminates at a humid, ſaline glen, through which the road is carried over a ſtone cauſeway; and we now travelled through a plain extending to the ſtone bridge on the Perekop road, and the adjacent poſt-ſtage.

Here

Here is an old Ruſſian fortification; and the diſtance is computed at eighteen verſts from Uſhum. The ſubſequent part of the road to that town is, during the ſummer, an arid, barren, and duſty level tract.

On the 27th I departed from Perekop. The poſt-road leads at firſt towards the Weſt along the line, and then to a conſiderable diſtance along the ſhore of the gulf. Its banks and points of land are diſtinctly viſible, and ſomewhat raiſed above the ſurface of the ſea. On the ſteppe above alluded to, we obſerved the *Polycnemum arvenſe* and *dichotomum*, the *Salſola Kali*, and ſometimes the *S. Soda* and *ſedoides*, growing in profuſion. After travelling thirty-two verſts, we arrived at Kalantſhak, where Prince POTEMKIN has erected a reſpectable palace, which was embelliſhed with ſix adjacent buildings, but is now in a ruinous ſtate. In this place are ſeveral deep and excellent wells; it is ſurrounded with a regular fortification, defended by baſtions of earth, and there are two buttreſſes for a wooden bridge: on the oppoſite ſide is a ſtone bridge over the rivulet Kalandſhak. The next ſtage is Kopanki (thirty verſts); ten verſts farther, after paſſing a village of coloniſts bearing the ſame name, we reached Kaſtagriſova, another village occupied by new coloniſts (twelve verſts), and ſituated near the vale of Karavaika, which is encompaſſed by a ſandy glen. Next, we travelled through a diſtrict, containing accumulations of drifted ſand, and extending to the village of Oleſhki (eighteen verſts): here flouriſhes the *Salix incubacea*, a ſpecies of procumbent willow with red twigs, growing in ſmall buſhes not unlike thoſe of the birch; and which is probably a remnant of the *Lucus Achillis* mentioned by STRABO.

The

The *Carduus cyaniodes polyclonos* grew here in a very peculiar manner, with lanceolated leaves, having ſcarcely any diviſions; and forming red wings along the ſtalk. The *Arundo arenaria*, *Onoſma echioides*, and other plants that delight in a ſandy ſoil, were alſo frequent. This tract continues along the Dniepr, as far as the intrenchment of Shuriefſkoi, and to the iſthmus lying in front of Kinburn.

Oleſhki, the name of which is perhaps derived from the ancient Heleniopolis, is a large village, conſiſting of two hundred and ſeventy-five houſes, ſituated on an elevated ſteppe, contiguous to the marſhy ground forming the low banks of the Dniepr. Under the juriſdiction of the ſame ſuperintendant, ſix other villages have lately been eſtabliſhed in its vicinity; namely, Bolſhye Kopani, comprizing ten; Kardaſhina, twenty-five; Kaſtagriſova, ſix; Tſharburdi, ten; Radenſkaya, and Malye Kopani, each containing ſix houſes. The number of males in all theſe villages amounts to nine hundred and ſixty-four; and we found new ſettlers, ſtill employed in erecting villages on the road from Perekop to Beriſlavl; and which will receive the names of Tſhapli and Tſhernaya Dolina.

In the environs of Oleſhki, the Syetſh of the Kozaks of Saporogi was formerly ſituated, about twenty-eight verſts from the beginning of the Leeman of the Dniepr, and thirty from the firſt of the Kinburn ſalt-lakes.

The paſſage from this place, over the Dniepr, to the town of Kherſon, is performed in ferry-boats. From the neareſt arm of the river, termed Tſhaika, we paſſed into the Konſkaya; thence into the Gniluſha; and, laſtly, over the Dniepr itſelf, which is ſomewhat leſs than one verſt in breadth. The whole

low

low country is marſhy, and covered with tall flags; and the diſtance from Oleſhki to Kherſon amounts to eighteen verſts.

Kherſon, founded under the glorious reign of the Empreſs Catharine, ſince the peace of 1774, is ſituated upon an elevated dry plain, on the right bank of the Dniepr: it commands a view of the broad ruſhy fen. When the wind blows from that quarter, it receives a conſiderable portion of pernicious air during the ſummer. The town conſiſts of the fortreſs; the military ſuburb ſituated above it; and of the city, inhabited by burghers; and which is built upon a gently riſing plain, farther down the river. Within the fort ſtands the principal church, which is a beautiful edifice: at a ſhort diſtance from it is the obeliſk erected to the memory of the Prince of Wirtemberg, of General Müller-Sakomelſki, and of Korſakof, General of Engineers. In the church itſelf are depoſited the remains of Prince POTEMKIN. The citadel alſo contains the arſenal, the admiralty-wharf, and the houſe of the Commandant. The lower town is regularly planned, and embelliſhed with two churches; beſide which, a beautiful new one was building at the time of my viſit. Between the lower town and the fortification, there is an extenſive eſplanade, planted with trees, which have not perceptibly increaſed in ſize during the laſt ten years. Among the inconveniences, to which this town is expoſed, I ſhall only notice the dirt prevailing in the winter, and the inſupportable duſt, clouds of which are wafted about in every direction, during the ſummer; not to mention the innumerable ſwarms of gnats, that infeſt it from the marſhes. The total want of wood is ſupplied by beams of good pine-

deal,

deal, which are floated from the upper diſtrict of the Dniepr, and are ſold at the rate of one ruble each.

The commerce of this place is carried on, either by way of Otſhakof and Nicolaef, or from the Glubokinſkaya Priſtan, to which place the largeſt veſſels are navigated up the current of the river. Its exports conſiſt chiefly of wheat, hemp, ſail-cloth, and linen; and, if more wealthy merchants ſhould ſettle at Kherſon, it might, in the courſe of time, become a very important place. Siberian ivory has alſo, for ſome years paſt, been ſhipped from this port.

The communication from the upper diſtricts of the Dniepr, would be far more advantageous to the commerce of Kherſon, if the cataracts, occaſioned by the ſtratum of granite by which it is interſected, and the rapid ſtreams occurring in rocky places, did not interrupt the navigation of the river from Kaidak to the vicinity of Nicopol. Theſe cataracts, for the removal of which the Crown has already diſburſed, and is ſtill expending large ſums, (though they have hitherto been avoided by land-carriage,) admit only of timber being floated down the ſtream at high water. The number of ſuch places, as are more or leſs dangerous, and ſome of which produce a ſlight fall of water, while others have a rapid and confined current, amounts in the whole to twelve; namely, Kaidatzkoi, Sarſkoi, Lokhamſkoi, Svonetz (one of the moſt conſiderable); Knäginetz, Nonaſſitetz (the moſt dangerous, as it cannot be paſſed by empty veſſels); Volnyſh, Voronova Sabora, Budylſkoi, Lytſhnoi, Tovolſhanoy, and Volneey.—The tract of granite, which here conſtitutes the rocky banks of

of the Dniepr, and forms a bed full of cliffs, is the ſame which proceeds from the regions between the Berda and Moloſhna; paſſes along the old line, and the Konſkaya, through the Dniepr; and croſſes the Ingul at Elizabeth, and the Bug at Sokoly; being perceived as far as the diſtrict of Tumbaſſar, or Dubaſſar, on the banks of the Dnieſtr; where it very diſtinctly appears as part of the Carpathian mountains. It is highly probable, that this bed of granite would, at ſome future period, diſcover a valuable ore, if proper perſons were commiſſioned to examine it with accuracy.

On the 25th of July, although the heat was almoſt inſupportable, I proceeded on my journey from Kherſon, over gently riſing ſteppes, through Byela-Tzerkov, or White Church, twenty verſts; then to Kopenka (fifteen verſts), where all the water was evaporated; and arrived, in the night, at Nicolaef, which lies thirty verſts farther.

Nicolaef would become one of the handſomeſt and fineſt towns of the empire, if the erection and embelliſhment of it were continued with the ſame ſpirit, with which they were commenced. So late as the year 1791, the building of this place was firſt undertaken on a deſert ſpot. In the year 1792, Mikhailo Leontièvitſh Faleeyef, who was commiſſioned by Prince POTEMKIN to form the plan of the town, erected upwards of four hundred and fifty houſes. In the following year, ſcarcely any progreſs was made; but, in 1794, by the activity of Admiral Nicolas Semenovitſh Mordvinof, the number of dwellings had already increaſed to ſeven hundred; and the town gradually became more extenſive, as the Admiralty was removed hither from Kherſon.

This town is ſituated in a fine plain between the Ingul and Bug, which unite at its extremity in an angle, formed by the latter, whoſe current flows from Weſt to Eaſt. The market-place, together with the moſt handſome buildings in the town, extends along the Ingul; and above it appears the Admiralty. The reſt of the houſes are diſpoſed in regular and ſpacious ſtreets, forming perfect ſquares. The fineſt edifices ſtand round the market-place, and conſiſt of the church, which is built in a modern ſtyle of noble ſimplicity, and is internally decorated with equal correctneſs of deſign; its ſanctuary repreſenting a temple, ſupported by eight pillars richly gilt, and embelliſhed with fine paintings;—farther, of the town-houſe, with two elegant colonnades at the wings, one of which ſerves for the exchange; of the mercantile hall; the houſe of the Jew contractor, Borech; that of M. Faleeyef, erected in the Moldavian taſte; the manſions of Admirals Mordvinof and Ribas; as well as of the dwelling of M. Dauphiné, a merchant; the laſt of which is conſtructed of a calcareous ſtone, ſuppoſed to contain ſilver. The Admiralty forms a large and cloſed ſquare, next the fields; and the wharf lies oppoſite ſuch a curve of the river, that veſſels, launched from the ſtocks, immediately deſcend the Ingul into the Bug. It is to be regretted that this place is deſtitute of good water; which, in conſequence of ſea-winds, becomes brackiſh; ſo that this neceſſary fluid, if required for drinking, muſt be procured from the fine ſprings in the garden belonging to the manor of Spaſkoi, which is ſituated on the banks of the Bug, at the diſtance of two verſts. There is an excellent opportunity of eſtabliſhing kitchen-gardens and orchards in the adjacent rich

low

low grounds. Willows and poplars flouriſh in this ſoil, and ought to be planted in numbers; becauſe the whole country is entirely deſtitute of wood.

The pleaſant eſtate of Spaſkoi (which was firſt laid out by a perſon of the name of Fabré, but afterwards transferred to Prince POTEMKIN, by whom it was beautified) is ſituated to the weſt of the town, upon a ſandy declivity towards the Bug, where copious ſprings of the fineſt water occur. Theſe have been collected into an elegant fountain, encompaſſed with ſtone, cloſe to which is a bath, erected in the form of a temple, together with a cold and a ſhower-bath: in the garden are planted vines and fruit-trees. The eminences between this eſtate and the town afford a delightful proſpect of the latter, and over the ſurrounding country to the diſtance of twelve verſts, as far as the village of Bogoyavlenſköe, which is likewiſe built in the vicinity of ſprings, and is embelliſhed with a pleaſure-houſe and garden. The whole angle, between the Ingul and Bug, contains a ſtratum of calcareous ſtone, interſperſed with ſhells; of which foſſil the houſes in Nicolaef are conſtructed; and this ſtratum extends weſtward, acroſs the Bug, into the country of the newly erected ſea-port town of Odeſſa.

The banks of the Bug, below the town, are alſo remarkable for the remains of Greek antiquities there diſcovered. About twenty verſts down the ſtream, oppoſite to Kiſlatofka (a place ſituated on the right bank of that river, near which occurs a ſmall ſalt-lake, and where the Kozaks of Saporogi formerly had a fiſhery) between the defiles of Volſkaya and Shirekkaya,

there are ſtill obſervable ſome vaults and ruins; being the veſtiges of a Greek town. According to the diſcovered coins the obverſe of which generally repreſents a head with a wreath of laurel, and the reverſe a vulture (ſome of them having the inſcription *Olbiopolis* in very diſtinct characters) we ought to ſearch here for the true remains of the Mileſian colony of Olbia.

On the fifth plate, *Fig.* 1. 2. 3. I have cauſed three of theſe coins to be engraven. In the ſame place has been found the key-ſtone of an arch, about twenty-eight inches in breadth, with a Greek inſcription repreſented in *Fig.* 4., and which is now depoſited in the church at Nicolaef: here alſo is preſerved a large plate, with the bas-relief delineated in *Fig.* 5. of the eighteenth plate, which was diſcovered ſomewhat lower down, near Tzarä-Kamyſhi, where it ſerved the mariners for laying hold of with their boat-hooks, and has thus been greatly injured. On approaching towards Nicolaef, a little below Dolgaya Koſhka, ſome remains of another ancient inhabited place are ſaid likewiſe to exiſt.

Profeſſor AFONIN, who reſides at Nicolaef, has kindly communicated to me the deſcription of ſeveral antiquities, that were formerly found in theſe ruins of Olbia; and of which I ſhall here inſert an account.

1. A medal, having a ſun on one ſide, and, on the reverſe, a vulture, or eagle, with half-expanded wings, at the feet of which is a fiſh; but it has no inſcription.
2. A coin, with a buſt on one ſide, which probably repreſents Apollo; from whoſe mouth, as in *Fig.* 1., proceed the

the letters Δ and ϒ (*Uk*), which apparently denote a ſyllable of imprecation; on the reverſe is a vulture with the inſcription: ΙΕΡΑ ΘΕΟ ΑΠΟΛΛΟΗΟ.

3. A medal, having on one ſide a head, likewiſe crowned with laurel, and on the other a tree, the roots of which are twiſted together, and on the branches of which a bird is perched, with the inſcription: ΟΛΒΙΑΡΙΒΕ=, that is; Olbia, ariſe.

4. Another medal, with a head on one ſide, and an illegible inſcription on the exergue: on the reverſe, the impreſſion is effaced.

5. A coin, with a head on one ſide, and the inſcription: =ΜΕΤΑΝΔΟΥ=. On the reverſe it has a vulture, ſlightly hovering with its wings; the left of which exhibits a Δ, and the right an arrow, with the inſcription: =ΟΛΒΙΟ-ΠΟΛΙΤΙΚΙΝ=.

6. An earthen ſepulchral lamp, with the figure of a dog running. It is reported, that the modern Greeks ſtill burn ſuch lamps (*Lichnarion*) during the night, in a receptacle attached to the tombs.

7. A piece of marble of a moderate ſize, in the centre of which is repreſented an owl, the ſymbol of Minerva; and behind it, on both ſides, are two guards with axes in their hands.

At a ſhort diſtance from Nicolaef, a colony of Turks was eſtabliſhed, under the ſuperintendance of Sallin Aga, who had been a favourite of the noted Haſſan Capitan Paſha; and who, after the deceaſe of the latter, had remained under the protection of Ruſſia. But, as this colony could not be ſupplied with females,

females, either from the Crimea, or from other parts, it was in the year 1800 removed into the diſtrict of Karaſſubaſar, in order to afford the male Turks opportunities of entering into marriage.

The gangrenous ulcers, a ſpecies of the venereal diſeaſe, ſo frequently obſerved in Siberia, and here called *Tſholtſhak*, are ſaid occaſionally to appear, in the ſummer, among the inhabitants of the banks of the Bug and Ingul.

On the 26th of July, in the afternoon, I continued my return from Nicolaef. Towards the ſource of the Ingul, there are riſing ſteppes, uniformly high, and diverſified with pleaſant vallies. After travelling twenty verſts, we arrived at the village of Kadilofka; and again twenty-two, which are rather under-meaſured, at that of Mikhailova. Near the village of Chrenova, we paſſed a wretched bridge over the Ingul, after which we proceeded on the right bank of that river to the Lekkerſkoi-Tractir, a poſt-houſe belonging to a Surgeon of the Staff, who here poſſeſſes an eſtate. Twenty verſts from this place, and in the vicinity of Tkatſhik, we croſſed the Brook Gromoklea, which flows into the Ingul, and which here forms a confluence with another rivulet, where hard calcareous ſtrata are expoſed to view. The proprietor has eſtabliſhed a fine ſtud of horſes; and the grain is here preſerved under ground. Twenty-five verſts farther, we reached a village belonging to Count Witt, occupied by refugees, and ſituated on the banks of the Gromoklea: we now traced its current

current towards the ſource; along its banks, as well as on their ſurface, layers of granite are diſcernible, and mixed with red ſpath. Theſe ſtrata run in a direction from North to South, ſometimes precipitately decline towards the Eaſt, and are occaſionally inverted. Each bed is from one ſpan to three feet ſix inches in thickneſs, and conſiſts of the moſt perfect primitive granite, being a continuation of that mineral tract which cauſes the cataracts of the Dniepr, and occupies the diſtrict between the Berda and Moloſhnye Vody. Near the villages of Gromoklea and Suyaklea (each twenty-five verſts) the rocky layers on the banks of the rivulet were compoſed of a coarſe-grained granite, intermingled with a large portion of pale feld-ſpar, likewiſe diſpoſed in ſtrata running from North to South, and ſtanding inverted. A peculiar perennial ſpecies of *Clypeola*, with yellow flowers and grey leaves, was here frequent upon the rocks, as well as on the ſoil adjacent to the cataracts of the Dniepr. Somewhat to the left of our road, lies the pleaſant village of Gregoriefka, the property of Major Berends, on the banks of the rivulet Kamyſhevata. Above that place, I ſaw a quarry of granite, in which occur thick ſtrata of quartz, interſected with layers of feld-ſpar, and reſembling veined wood. Still farther, on the upper banks of the Kamyſhevata, white porcelain-clay is dug on the eſtate of Major Titof; it is mixed with particles of quartz and fine mica; being very ſimilar to granite decompoſed by the atmoſphere, and from which the Briſtol porcelain was formerly manufactured, after its conſtituent parts had been waſhed, and the quartz reduced to an impalpable powder. Near the rivulet

Vſhivaya

Vſhivaya (fifteen verſts), I regained the poſt-road: here is ſituated a miſerable village, at the diſtance of twenty-five verſts from Suyaklea; and from this place it is only twenty-two very ſhort verſts to St. Elizabeth. The herbage of this beautiful, and in general very productive ſteppe, was entirely burnt up by the heat of the preſent ſummer.

Eliſabet-grad, formerly called the fortreſs of St. Elizabeth *, was a frontier town againſt the Crimean Tartars, and one of the principal cities of New Servia: it was peopled, under the reign of the Empreſs Elizabeth, with various coloniſts from Moldavia, Servia, and Hungary; and, as late as the year 1769, ſuffered from the incurſions of Krymghirei-Khan. Since the Crimea has been in the poſſeſſion of Ruſſia, theſe fertile diſtricts have enjoyed a happy ſtate of tranquillity. The fort of St. Elizabeth is ſurrounded with an uniform mound of earth, ſtrengthened by ſix baſtions, and by dry ditches on the weſt ſide of the Ingul: it is provided with wells, a church, a houſe for the Commandant, and with barracks. The town has five churches; is built on both banks of the Ingul, towards the Eaſt and North of the fortification, with ſtreets regularly diſpoſed in a longitudinal direction; and is, on its weſtern ſide, interſected by a deep glen for carrying off the rain-water. Farther, upon an eminence eaſtward of the Ingul, there is a ſmall ſuburb, containing a wooden church, and thirty-two windmills. In a cleft to the North-eaſt of the town, on the oppoſite ſide of the Ingul, a fine white clay, mixed with grains of quartz and

* See Güldenſtädt's Travels, (*in German*,) Vol. II. p. 175.

a ſilvery

a ſilvery mica, is obtained in large accumulations: this foſſil greatly reſembles feld-ſpar in a decompoſed ſtate; is found in a bed of yellow ſand; and is uſed for the purpoſe of white-waſhing houſes.

The poſt-road continues for twenty verſts, to Adſhamka, a village conſiſting of four hundred houſes; embelliſhed with a church; it is built on the banks of the Ingul, in a pleaſant valley, ſituated between eminences, and in the vicinity of wells; being inhabited by the former regiment of pikemen of Eliſabet-grad. We next reached Petrikofka (twenty-ſix verſts), a Sloboda of ſix hundred houſes, lying in a ſandy vale, through which the Beſhka flows in its courſe towards the Ingul. Twenty verſts farther we arrived at Alexandria, a ſimilar country town; which, according to the regulations then ſubſiſting, was one of the principal places of a diſtrict. Here we croſſed the Ingul a ſecond time; and, after travelling twenty-ſeven verſts, we entered Svätina Balka. The ſteppe now becomes hilly, and is interſected with deep glens; ſome of which are covered with bruſhwood, and are connected with each other. On the ſides of ſteep banks, we occaſionally met with granite; and our attention was excited by ſome remarkable hillocks reſembling fortified works; and accompanied by barrows.—At a farther diſtance of twenty-two verſts, lies the populous town of Krementſhuk, which is regularly built, and very advantageouſly ſituated for commerce, on the banks of the Dniepr. We croſſed that river over a wooden bridge, nearly four hundred fathoms in length: the ſtreets of the town are boarded with planks; a proof of the abundance of fir-timber,

which is floated down the Dniepr, from its upper banks in White Ruſſia. The traffic, carried on with this article, as well as with corn, conſtitutes the moſt important branch of the trade of this place. As we arrived here in the night, and proceeded on our journey early the next morning, I cannot enter into any detail with reſpect to the flouriſhing ſtate of Krementſhuk.

The road now leads through extenſive, ſandy, low grounds on the banks of the Dniepr, which are interſperſed with willows and various other trees; and where the river appears to have completely interſected the ſtratum of granite. Immediately behind Potok (eighteen verſts), we ferried over the Pſoll, which falls into the Dniepr, at the diſtance of ten verſts from this place. Beyond it, the low country is impregnated with ſalt, and produces abundance of *Chenopodium maritimum*, *Camphoroſma annua*, *Arenaria maritima*, *Salicornia herbacea*, and Orache. We then paſſed over uniformly fertile plains, through Gorbanovy-Khutery (eighteen verſts) to Tſhetſhina (ſixteen verſts); where we croſſed the Vorſkla. Next, we proceeded to Kobylaek (ſixteen verſts), a neat town of Little Ruſſia, conſiſting of one thouſand four hundred houſes, and having ten churches: a ſchool has here been lately eſtabliſhed, and the place contains many elegant dwellings. It is ſituated in a charming plain, on the banks of the Vorſkla, and is adorned with gardens. On the road thither, I was delighted with the excellent level meadows, encloſed by ditches, and embelliſhed with fine plantations of willows; which belong to Major Gansha, a retired officer reſiding in Kobylaek,

and

and whoſe example juſtly deſerves to be imitated. The advantage, reſulting from this œconomical arrangement, was amply evinced by the numerous hay-ricks, which I ſaw in ſo dry a year. I was aſſured that the current of air, occaſioned by the trees, produces ſuch an effect, that no humid cloud paſſes over his land, without ſhowering down its bleſſings.

The remaining ſtages to Pultova, namely, Novye-Senſhari (twenty-ſeven verſts), Gergelef-rog (ſixteen verſts), and the laſt twenty over a low ground, extending to the Vorſkla and the fine elevated plain interſperſed with bruſh-wood (where the place, on which the ever memorable battle was fought between the Ruſſians and Swedes, is diſtinguiſhed by a prodigious monumental hill), I performed on the 1ſt of Auguſt, during continued rain; and late in the evening arrived at the town, celebrated for that victory, which laid the foundation of Ruſſia's preſent greatneſs. Every perſon, who ſurveys the indifferent earthen fortifications of this place, muſt be aſtoniſhed that ſuch a commander as Charles XII. ſhould have heſitated to attack a town, in which the memory of his diſaſter, ſo prolific in conſequences, is now preſerved by a columnal tower erected near the beautiful church of Voſkreſenſki; and on which is exhibited a caſt-metal plate, repreſenting the battle.

Here I conclude the deſcription of this journey, on my farther return, by the way of Akhtyrka, Sumi, Mtſhenſk, the fine towns of Kurſk, Orel, and Tula to the city of Moſco: I was induced thus abruptly to terminate my obſervations; as, beſide theſe handſome towns, now rebuilt according to a modern plan, few remarkable objects occurred on my route; and, becauſe the road from Moſco to St. Peterſburgh (where I arrived on the 14th of September) has been repeatedly deſcribed.—A view of the large hillock near *Bronnitza* forms the ſubject of the fourteenth Vignette, at the end of this volume: notwithſtanding its conſiderable ſize, that eminence appears to have originated from human labour; and I have given an account of it, in my former Travels.

* * *

"In order to contemplate a remarkable object, I tarried here ſeveral hours: I allude to the very ſteep round hill, called Bronnitzkaya-Gora. It is ſituated on the ſouthweſtern ſide of the village Bronnitzkoi-Yam, concerning which various ſtories are related; but it would be needleſs to repeat them. The proſpect from this eminence over the ſurrounding country, as well as the lake Ilmen, is very extenſive. On its ſummit are two ſprings; which, though ſmall, deſerve to be mentioned on account of their ſituation. One of them is incloſed, and near it ſtands a houſe, which is now in a ſtate of decay; whereas the other lies exactly on the top of the hill, appearing like a puddle overgrown with aquatic plants; and by the ſide of

of it is erected a wooden chapel. The former of these wells occurs on the southern declivity of the hill, and is scarcely six feet in depth: the peasants ascribe medicinal virtues to its water; though, like many other springs in high repute with the vulgar, it is merely a pure and limpid stream. The whole hill was embellished with variegated flowers; which, together with the dwarf-elms growing on its upper surface, contributed to give it a pleasing appearance: hence it is a favourite resort of young country people on festival days. The plants, flourishing here, evince their vegetation and subsequent decomposition to have been attended with some elevation and change of soil, as well as of the vegetables. The *Chrysanthemum Leucanthemum*, and *Succisa*, are very frequent; and, on the south side of the hill, the *Scleranthus annuus*, and the odoriferous *Anthoxanthum*, were in blossom.

"Like the surrounding country, the Bronnitzkaya-Gora consists of a loamy soil: on its lower part are scattered many prodigious flag-stones, which are composed of a reddish feld-quartz, interspersed with a black blende, in the manner of granite. Numbers of them have already been split by explosion, and conveyed to the capital; as they afford excellent materials for building: nevertheless, several are still observable, which measure seven feet and upwards in diameter. The largest of these stones was found at the foot of the hill, near the road; and, according to the cavity it has occupied in the ground, it must have measured more than twenty-one feet in diameter. Is it, therefore, probable that such rocks could have been carried thither by the force of the water, as is generally

generally aſſerted? Or, muſt the origin of all the granitic field-ſtones (which are frequently found of the largeſt ſize) rather be accounted for in a different manner?" PALLAS's *Travels through different Provinces of the Ruſſian Empire.* Quarto. St. Peterſburgh, 1771 (in German). Vol. I. pp. 5 and 6.

FINIS.

MAP of the STEPPE
between the
LOWER VOLGA and the DON;
Where the CASPIAN SEA was formerly
united with that of
AZOF.
WINTER CAMP of the KIRGHIS
TSHERNOI ILMEEN
Salt Lakes
ASTRAKHAN
KRASNOYAR
TSHERNOI YAR
YENATAEEKA
DON RIVER
Salt River
Gorkaya River
Leeman or Lake of Manytsh
Salt Lakes
Petshannoi Kolodesnaya
Rassypnaya
Letnitzkayaa
Vestofslaskoe
Medvedi-Kurganskaya
Progradnoe
Basopasnoe
Donskaya
Moskofskaya
Petrofsko
Kalaus River
Kokaigir Hill
Medveshik Klyutsh
Byelye Kolotzy
Manglai bulak
Karaega
Manytsh
SALINE HEATHS
Salt Lake of Madsharskoi
Bargo Hill
Lake of Bialoe, or Tzagannohr
Little Sarpa River
ENCAMPMENTS OF THE KALMUKS
ELEVATED PLAIN THAT FORMERLY COMPOSED THE BANK OF THE CASPIAN SEA
Kubani R.
Tshelbash Mt.
Bukhovostoff Hill
Alabuga
Hagann Ternick
Balaleo
Sinseeley
Drabrata
Tshedirve Bugry I.
Manzur Khorinukhuluk
Slob Grisheva
Shmuli
Salt Lake of Bassu
WANDERING NAGAYS
Bertim or Sarpa R.
Beshkol Salt Lake
Durnofka
Lebashintka
Samian Gorodok
Volga
THE CASPIAN SEA
Mainat I.
Marble I.
Sunoe More or
Randorofska
Manytskaya
Buketovka
Khomutetskaya
Lower Yegorlik
Kugultinskaya
Kopa Yei Br.
Kraiovoe Yei
Kamyshevaia Yei Br.
Plamenaya Yeika
Yeika Br.
Strelnaya Yegorlitskaya
Middle Yegorlik
Krasnoe or Marsanka
Khomutetskaya R.
Kara Salt R.
Yakshibai Salt
Shurai Salt Brs.
Bashkaia Salt Brs.
Lower Sebeka
Middle Sebeka
Upper Sebeka
Histe Br.
Bargusta Br.
Sukhoi Br.
Kongulo Br.
Rosoen Br.
Khodoi Br.
Emeta Br.
Krasnoe Kopanie or the Red Spring
Yashkol R.
Kalaus River
Kara Salt R.
Gratsheka
Verblugskoya
Kopanofskaya
Kosinkinskaya
Seroglazofskaya
Volga River
Kokaitova
Volga
Salt Lakes
Salt Lake
Salt Lake of Bassu
Kaustha
Drabrata
Tshedirve Bugry I.
Rushkov Yerik
Yerik Amaka
Mainat I.
Marble I.
Sunoe More or
J. Bogaevski fecit

PART OF THE CASPIAN SEA
MAP of the COUNTRY between The BLACK and the CASPIAN SEAS.
STEPPE INHABITED BY THE TURCOMANS OR TRUKHMENES
Sandy Heights
Kuma River
Tashetsheu Isle
KISLAR
Koisu
MOSDOK
Ekaterinogrod
Nour
Pavlofskaya
Mariinskaya
Constantinogorsk
Kubanskoi
Severnaya
Stavropol
Protshnoiokop
Tomnolefskoi
Kasak-Kuut
Bay of Kumskoi Kultuk
Aksai R.
Sukhoi-Aksai R.
Aktash or Kambulat R.
Koisenor
Sada
Stone Fort River
Tarkhoo
Ancient Fortress
Old Entrenchment
Kuma R.
Terek R.
Malka
Baksan R.
Kabarda
Little Kabarda
Tshetshenzi
Kumbulei R.
Sand Hill
Karskoe
Kuma R.
Ankeeteree
Tshalinskaya Pristan.
Kalmitchee Ozero
Bolka made an Isle of the Kuma filled up with Sand
Solodimerofka
Mekraya
Kalaus R.
Karakaitag
Elbrus
Kasbek
Beshibai
Little Karachai
Kuban R.
Laba R.
Zelentchuk R.
Kuma R.

OTSHAKOF
KHERSON
Kinburn
DNIEPR RIVER
GOVERNT OF
NEW RUSSIA
PEREKOP
Kossa Dshardgatch
Tonkoi or Tenitr-khe
Kossa Fedutova
THE SEA OF AZOF OR LACUS MAEOTIS
Isthmus of Arabat
Cape Bashkeen
Arabat
Kertch
Yenikale
Cape Tuzla
Cape Fontany
TAURIDA
Leucopol
Aibat OR THE
KOS OF
CRIMEA
ARMETSHITA
KAIASSBASAR
KAFFA
TAMAN
Kopyl
Gostagaisk
Katsha R.
Belbek R.
BAKHTSHISARAI
Oshtoli Kaleh
Inkerman
Tshernaya R.
SEBASTOPOL
BALAKLAVA
Cape Fiolent
Kutshukoi-porpantoki
Kutshuktorpantoki
Aschee Bashee
Eridyatoi
Tayak
Beeten
Darmoen R.
Koulatsak
Salgir R.
Kara Su
Kara Tau
Kerpitsh Bay
Kerpitsh
Kerpitsh Bay
Kerpitsh Bay
Kerpitsh Bay

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Printed by A. Strahan,
Printers-Street.

2 Vols

thwe
6/3/60